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When Taxpayers Furnish Attorneys to Shippers

Railway officers incessantly complain that the railways do not receive a square deal from the regulating authorities, and especially those of the states. The *Railway Age Gazette* in an editorial in its issue of March 13, entitled "'Impartial' State Commissions," told how members of certain western state commissions had met at Kansas City, decided without having heard anybody that the eastern railways were not entitled to an advance in rates, and designated one of their number to go to Washington and appear before the Interstate Commerce Commission to show it why rates should not be raised. The states in question are Iowa, North Dakota, South Dakota, Missouri, Nebraska, Kansas, Oklahoma and Arkansas. The representative they sent to Washington is Clifford Thorne, chairman of the Iowa Railroad Commission. This gentleman has since, *as chairman of a state railroad commission,* and therefore, presumably, a representative of the public and the public alone, got much publicity for his anti-railway arguments. As indicated by the *Railway Age Gazette* last week, it has now developed that he not only represents these eight state commissions, but also represents two large organizations of shippers, the American Live Stock Association and the National Council of the Grain Dealers' Association. Thorne explains to the Chicago *Tribune* that his expenses are paid by the states mentioned, and that he represents the shippers only "by courtesy." In other words, he is taking the money of the taxpayers of these states and using it to carry on litigation in behalf of the American Live Stock Association and the National Council of the Grain Dealers' Association. These facts very strikingly illustrate the "impartial" and "judicial" attitude of these eight state commissions. It certainly is pretty soft for the shippers when they can get the taxpayers of the states to furnish them with attorneys in the persons of members of railroad commissions to handle their litigation for them. But what of the morals of a transaction in which money collected from the taxpayers of eight states is used to conduct litigation for organizations of shippers which, as their attorney boasts, have a membership in every state west of the Mississippi river? Is it any wonder, when such things happen, that men of some sense of decency and fairness criticize the sort of regulation to which railways are subjected in most of the western states?

The Singular Situation at St. Louis

A singular situation is presented in St. Louis as a result of the final decree entered by the federal circuit court in the case of the government against the Terminal Railroad Association of St. Louis under the Sherman anti-trust law. The decree permits the Terminal Association to continue to operate as a terminal system for the trunk lines, but perpetually enjoins it from using the methods and practices of a transportation company. In other words it may continue to act as an intermediary for the railroads and perform all classes of switching *except as between industries.* The association is forbidden to engage in what is known as local or industrial switching, as this class of service is done for the exclusive convenience of the industries and has no connection with service rendered by the association for the railroads. The decision was handed down about a month ago, and the railroad attorneys interpret it to mean that the Terminal must entirely abandon its local switching if it is to comply with the letter of the decree. The Terminal has asked for a modification, and many of the shippers on its lines will, it is expected, intervene and back up this request. There are no fewer than 165 large industries on the rails of the Terminal Association that are wholly dependent on it for their switching service, and if the decree stands they will necessarily be seriously embarrassed in their effort to compete with similar plants in other cities that enjoy unrestricted switching facilities. The government counsel insisted on this feature of the decree and won his point with the court. Some of the St. Louis newspapers backed up the prosecution strongly, not anticipating that the outcome of the litigation would be injurious to the city as an industrial center. The newspapers that heralded the decree as a great victory for the city and the shippers are not now so enthusiastic. The shippers themselves did not participate in the suit, and now that the final decision is entered many of them find themselves victims rather than beneficiaries of it. Some of the large plants that will be affected by the prohibition of local switching will be forced, unless the court modifies its decree, to engage many teams and trucks to perform a service that is now rendered by the Terminal for rates ranging from $1 to $3 per car. Aside from the loss of time and the other annoyances resulting from this method of moving materials between plants, the service will cost many times more than the rail charges, and this will make

a very material difference to the manufacturer who has to compete with factories not dependent upon this archaic method of doing business. The motion for the modification of the decree will, it is hoped, be passed on before May 1. In the meantime the Terminal will continue to do industrial switching, but if the order is not changed it may be compelled to abandon this character of service in order to avoid being in contempt of court. The order may be good law; but it is not from the standpoint of railway, shippers or public, either good business or good sense.

Private Car Lines and M. C. B. Price List

Lack of reciprocity in the matter of car repairs seems to be the chief criticism the private car owners have to offer regarding the M. C. B. price list of labor and materials, according to the questions put to Mr. Demarest by the lawyers for the car owners at the hearing last week, in Chicago, before the Interstate Commerce Commission. This is a short-sighted attitude for the private car owners to assume. The M. C. B. prices for labor and materials have been compiled after much study and have been accepted by the association as a fair average for the entire country. It is not to be supposed the profit on repairs, if profit there be, will be the same for each road, as the different labor conditions, the location of the shops in respect to the equipment markets, and the equipment of the shops are factors which control the actual cost of making repairs. The fact that the repair accounts between two roads may balance does not mean that the repairs cost neither road anything, for each road has to pay for the labor required to do the work, and if one road is well equipped for making the repairs required it may make a profit, otherwise it is likely that repairs will be made at a loss. If the private car lines desire to reciprocate in the matter of car repairs so that remittances may balance or, in other words, the bills payable may offset the bills receivable, they must handle all types of cars that are offered. This would require them to have considerably more and different shop equipment and more diversified classes of labor. It is very doubtful whether, under those conditions, the ultimate costs to them would not exceed what they are at present. As a matter of fact, they are getting their repairs made without any overhead charge for shop facilities or superintendence, which is a decided point in their favor, for the railways, in making repairs for both the private car lines and each other have to bear these expenses, although they are not included in the charges they make for repairs.

THE RAILWAYS AND GENERAL BUSINESS

THE main point to be determined in settling whether railways should be allowed to advance their rates is not whether they are earning on the average the minimum "fair return" to which they are constitutionally entitled. Nor is it whether their net earnings are increasing or decreasing. The main question which the Interstate Commerce Commission and the public should settle is whether the railways are earning enough to enable and encourage them to proceed with that increase and improvement of their facilities which are essential to enable them satisfactorily to develop and handle the commerce of the country and to contribute their share toward restoring the country to a condition of prosperity and keeping it there.

The railway managers first indicated that the roads were beginning to need higher rates in 1908. They based their claim on the fact that in 1907 they had been obliged to make heavy increases in the wages paid to labor. They were told then that they could not be allowed to raise their rates when the general business of the country was languishing. They, therefore, postponed their application for advances until business conditions had improved. Then they were told that they could not raise their rates because business had improved, and their earnings had increased. It was at the same time intimated to them that before they could expect to be permitted to advance their charges they would have to show that they were operating their properties with the greatest practicable economy.

Now, what have been the results of the policy of regulation that has been followed? Have its effects on the railway business justified it? Have its effects on business in general justified it? Has it caused expansion or contraction of the railway business? Has it caused expansion or contraction of general business? Statistics regarding the extent to which the railways have been developing their facilities, and regarding the mileage of road which have gone into the hands of receivers, throw more light on these matters than any others, for they show the extent to which those who control the financing of railways have been willing to spend money, and indicate the reasons why they have been willing or unwilling to spend it.

Turning to the figures regarding new mileage built, we find that they indicate that during the last six-year period—which covers the entire time during which the railways have been asking for higher rates—there has been a marked decline in the extensive development of railways. During the six years ending with 1907 the total new mileage built in the United States, according to reports made to this paper, was 30,733 miles. During the six years ending with 1913 the total new mileage built was 20,218 miles, a decline of 30 per cent.

Perhaps the best criterion of the intensive development of railways going on is the number of freight cars ordered, for under normal conditions it is the freight traffic which grows most rapidly in the United States, and the growth of which imposes on the railways the greatest necessity for the expansion of their facilities. Now, in the six years ending with 1907 the total number of freight cars ordered was 1,244,086, while during the six-year period ending with 1913 the number ordered was only 907,840, a decline of 27 per cent.

And how did the railways prosper during this period? Did the ratio between the demands on, and the amount of, their earnings decrease, in consequence of which the number of them which went into bankruptcy diminished, or did this ratio increase, in consequence of which the number of them which went into bankruptcy increased? The answer is that in the six years ending with 1907 the mileage of railways in this country that went into the hands of receivers was 5,365 miles, while the mileage that went into the hands of receivers during the six years ending with 1913 was 25,013 miles, an increase of 366 per cent.

Now, do the foregoing figures indicate that the policy of regulation followed has had a healthy or an unhealthy effect on the railway business? Has it stimulated or stupefied it? Has it caused expansion or contraction? If the figures indicate what answers should be made to these questions, then the answers which they suggest are perfectly clear.

But it may be said the policy of regulation pursued, by keeping down railway rates, has saved the public millions of dollars. There can be no doubt about that. But has it not cost the public more than it has saved it? The last six years have been a period of general business depression. Every few weeks some optimist in business or in public life has imagined that he could see a silver lining to the cloud, and has predicted that it would be only a short time until prosperity would be restored. At one time it was to be restored by blowing the breath of confidence into the dead body of business. At another time it was to be restored by the final passage of the tariff act. Still later it was to be restored by the passage of the new currency bill. But prosperity has not been restored. On the contrary, probably at no time since the early part of 1908 has general business been so poor as during recent months.

Has the railroad situation had nothing to do with this? Has the fact that there has been a heavy decline in expenditures for new railway construction, for permanent improvements and for equipment, had nothing to do with it? Has the fact that there has been an increase of almost 400 per cent. in the mileage that has gone into the hands of receivers had nothing to do

with it? Did the fact that in 1907 there were 735 railway employees per 100 miles of line, while in 1911 there were only 678 employees, have nothing to do with it? Has the fact that the railways all over the country recently have been laying off thousands of men nothing to do with it?

As a matter of fact, the railway situation has been for some years the chief thing that has been the matter with business. When the railways are unable to maintain and increase their expenditures at a normal rate they directly throw men out of employment and thereby directly diminish the demand for all kinds of articles of consumption. At the same time they reduce their buying of supplies and equipment, thereby reducing the business of all the railway supply concerns in the country, which in their turn are compelled to lay off thousands of men, which again reduces the demand for articles of consumption of all kinds. The effects of the contraction of railway purchasing power are, therefore, felt directly and indirectly throughout all industry. There is less business for manufacturers, less wages for workers, less business for the retail merchant, less demand for farm products, less business and less money for everybody.

Will the Interstate Commerce Commission settle the rate question like a body of theorists? Or will it settle it like a body of politicians with regard for only the political phases of the matter? Or will it settle it like a body of statesmen capable of considering the questions involved from the points of view both of public policy and of sound business? The present is a time of crisis in the railway business. It is also a time of crisis in general business—a time of crisis for every property owner, investor and wage earner—because on the way the rate question is settled will largely depend whether general business will improve, and if so how much.

A NOVEL MEANS OF FINDING MEN FOR PROMOTION

EVERY railroad man possessing ability and ambition desires to fill a higher place; and the questions of who is next to be promoted, what individuals deserve promotion and why some who seem to merit advancement are passed over, are frequently in the minds, if not on the lips, of men in all ranks. These considerations quite naturally would be the cause of much strife and discontent but for the general knowledge that the conditions are very difficult to deal with. There are not enough "good things" to go around. Men honest with themselves recognize their own failings as well as their virtues, and in their hearts admit that in the great majority of promotions the officers deal as fairly as human limitations will permit. The officer who exercises unbusinesslike favoritism in making appointments is likely to suffer for his weakness, by reason of inefficiency in his own organization; and if he is conscientious he resolves to be more impartial thereafter.

The one most common cause for unfairness in making promotions is the inability of the appointing officer to make himself equally well acquainted with all of the men who are eligible for a given position. His men are scattered over hundreds of miles of line and he can be in only one place at a time. A clerk in his own office may be unduly favored by him because an agent or yardmaster 200 miles away, much better qualified to fill a given vacancy, has been modestly attending to his own job and his special qualifications and his personality are not well known at headquarters. This defect the Canadian Pacific is going to try to do away with.

In an order recently issued by Grant Hall, general manager of the Western Lines of that company, employing about forty thousand men, superintendents and other employing officers are directed to report to him twice every year on the character, disposition and qualifications of every employee. This report is to review the service of the employee during the preceding six months and especial mention is to be made of any special manifestation of energy, ability, devotion to the company's interests or anything which may throw light on the availability of the man to fill a higher place. If in making a report it is found necessary to comment adversely on the services of any man, that man must have a chance to see the report and the officer must get him to acknowledge this in writing. If he thinks the report unfair to him he is to have the privilege of attaching a statement in his defence.

And this novelty is accompanied by another—surprise checking. Surprise checking to detect deficiencies or faults is common enough; the Canadian Pacific will have a checker going about incognito to discover good things. He will ignore the bad, leaving that feature to be attended to by the men making out the regular periodical reports before mentioned.

This inspector must, of course, deal with matters on the surface. He will report as to courtesy in dealing with the public, promptness of manner, neatness and general deportment. He cannot learn much about the fundamentals of a conductor's or an agent's character, for these are revealed only by a thorough examination of the individual's work, and the results thereof; but as superficial things often give indications of what is beneath the surface, the results of the inspector's work need not be superficial, by any means.

This entire scheme, though novel, is wholly normal. The wonder is that it has not been introduced on many roads long before this. Its methods have been used, of course, irregularly, by all efficient managers. But to make the practice systematic is a plain requirement of the simplest business wisdom. A railroad is inevitably confined largely to machine methods. For a manager to know his men personally, to the extent that this prevails in manufacturing or mercantile establishments is almost, or entirely, out of the question because of the extent of his territory. A superintendent not only finds it impossible to know all of his men; he cannot even inspect their work adequately, because they are so scattered. The Canadian Pacific would naturally be the first to feel the need of gathering knowledge systematically, for the disadvantage of having men scattered over hundreds of miles of territory would be more pronounced on it than on a road having fewer "magnificent distances" between offices. The same conditions, however, in less pronounced form, exist on all large roads. Those railroad officers who have made the best records in maintaining an efficient organization of conductors, enginemen, station agents, yard masters and freight solicitors, have been men who kept in close touch with these subordinates. One of the most notable triumphs of train management in American railroad history was that of Colonel F. K. Hain, who established the discipline of the elevated railroads in New York City 30 years ago; and a large element in his success lay in the fact that all of his four thousand men, including trainmen, were at all times within 10 miles of his office. It goes without saying that the superintendent who cannot thus keep in close touch and who desires to employ the best substitute for that advantage should go about the task systematically, as the Canadian Pacific has done.

General Manager Hall speaks of this move as a "first step" in qualifying the general officers to more surely pick out the most suitable men in the service when promotions have to be made. As a second step the division officers, no doubt, will have to improve their own facilities for knowing the men on whom they must make reports to the general superintendents. In this connection the practice of P. W. J. Smith, superintendent of the New York, Westchester & Boston, is worthy of special notice. He has meetings of his conductors, motormen and station agents every month. They keep really acquainted, and with decided advantage. This road has about one six hundredth of the mileage of the Canadian Pacific, and at first thought a comparison of the two may look like a joke; but it is not. The problem is the same on both: to have all of the employees who may be needed for higher positions known to some officer who is really representative of the central management. Mr. Smith's plan has been employed in a small way on a division 75 miles long. To get the advantage of it on a division 150 miles long, or twice that length, is something of a problem; but it is a problem well worth trying to solve.

NEW YORK CENTRAL & HUDSON RIVER

IF the balance sheet and income account, as a whole, of the New York Central & Hudson River for the calendar year 1913 made as good a showing as does the comparison of the details of transportation expenses and operation statistics between 1913 and 1912, the annual report would be good reading for New York Central security holders. In other words, if circumstances beyond the control of the operating management had been as favorable as was the outcome of the efforts to economize in transportation expenses, stockholders might well feel that their property had had a prosperous year. Transportation expenses need to be analyzed in detail to corroborate this statement; but for the moment it is sufficient to say that with two wage disputes decided by the arbitrators in favor of substantial increases, and with a voluntary increase in wages of station agents, the ratio of transportation expenses to total operating revenues in 1913 was 36.93 as against 37.34 in 1912.

The income account and balance sheet, however, reflect a situation that, while as yet not serious, obviously cannot go on indefinitely without seriously impairing the equity of the New York Central security holder in his investment. In 1913 the New York Central & Hudson River, operating 3,753 miles, earned $116,904,000, or $7,207,000 more than in 1912; operated on a 75.22 per cent. basis, as against 73.96 in 1912, and after the payment of fixed charges and rentals it had available for dividends $13,244,000 in 1913 and $13,883,000 in 1912. The 5 per cent. dividend requirements amount to $11,243,000 ($11,136,000 in 1912); the surplus, therefore, for the year amounted to but $2,001,000 in 1913 and $2,746,000 in 1912. This is entirely too small a margin of safety between the rather modest return of 5 per cent. and the total available for the declaration of dividends. It was a Pennsylvania officer who suggested by implication that a railroad ought to earn 10 per cent. on its stock to permit a sound declaration of 5 per cent. dividends; but it applies equally to the New York Central. It is all the more important that this be taken into consideration in the case of the New York Central last year, because the showing made in both 1912 and 1913 was contingent on the declaration of 18 per cent. dividends on the Lake Shore & Michigan Southern, of which the Central owns $45,298,000 stock, and the Lake Shore, as mentioned elsewhere, was hard hit last year.

The balance sheet at the end of 1913 shows cash on hand amounting to $10,079,000, which is included in total working assets of $92,969,000, while the loans and bills payable, amounting to $44,868,000, are included in total working liabilities of $67,595,000. At the end of 1912 working assets amounted to $95,419,000, and working liabilities to but $36,749,000, which included only $14,191,000 loans and bills payable. The credit to profit and loss at the end of 1913 was $12,966,000, as against $13,185,000 at the end of 1912.

Total operating expenses in 1913 amounted to $87,932,000, an increase of $6,802,000. Of this increase $2,293,000 was in maintenance of way, $2,165,000 in maintenance of equipment, and the greater part of the remainder ($2,202,000) in transportation expenses.

The following table shows the percentage of total operating revenues consumed by each class of operating expenses:

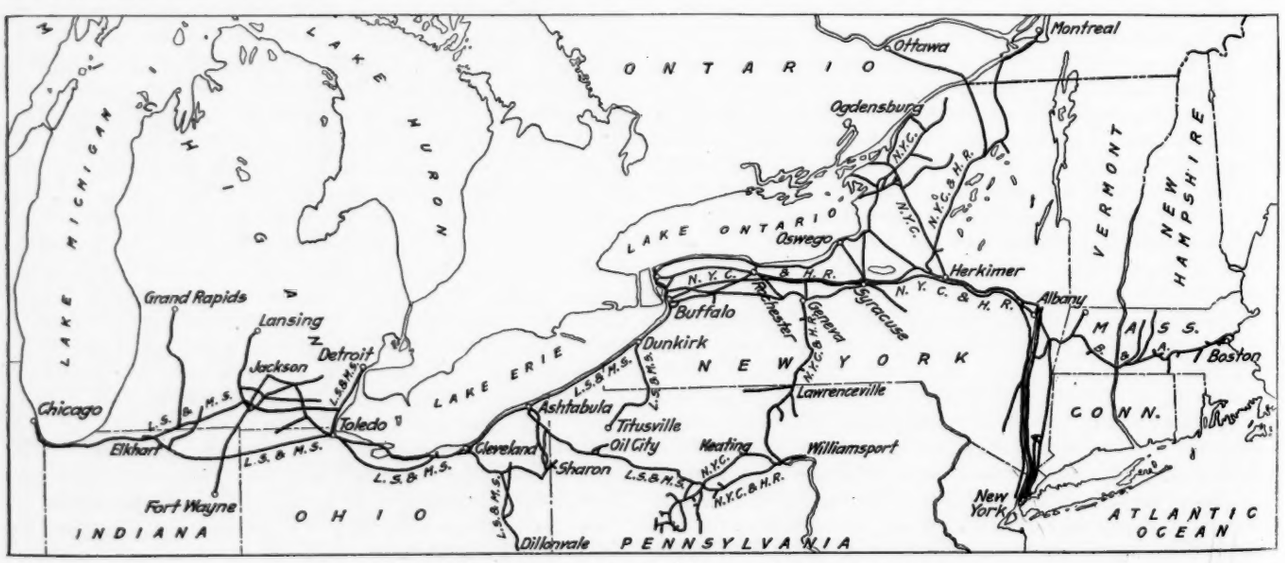
	1913	1912
Maintenance of way and structures	14.49	13.36
Maintenance of equipment	19.32	18.61
Traffic expenses	1.95	2.11
Transportation expenses	36.93	37.34
General expenses	2.53	2.54
Total	75.22	73.96

The increase in maintenance of way expenditures is almost entirely accounted for by an increase of $600,000 in the amount spent for ties, $647,000 for roadway and track labor, $408,000 for bridges, culverts and trestles, and $493,000 for buildings, fixtures and grounds. In 1913 there was a total of 2,477,000 ties placed in track, as against 2,074,000 in 1912; but the average price at point of distribution for these ties was 83.6 cents in 1913, as against 75.1 cents in 1912. This is notwithstanding the fact that there was a larger proportion of non-treated ties used in 1913 than in 1912. More labor was employed on track; but more important than the increase in the number of men was an increase of 6 per cent. in the wages of track labor which took effect in March and April, 1913. The increased expenditures for bridges and trestles is in considerable part due to the replacement of bridges on branch lines to permit of the use of heavier power. The increase in expenditures for buildings was the result of the replacement of passenger stations at Rochester, Utica, Pittsfield and Worcester.

The increased cost of maintenance of equipment was in part due to increases in the rates of wages in the mechanical department, averaging about 6 per cent., accounting for about $250,000 of the increase in 1913, as compared with 1912, and in part to the amount spent for applying safety devices and the application of steel underframes to cars. While the cost of the steel underframe itself is a betterment charge, the cost of preparing the car for the application of the steel underframe and of strengthening it in other places was charged to repairs. The following table shows the number of cars in freight and passenger service of steel, or having steel underframes, in 1911, 1912 and 1913:

	1913	1912	1911
Passenger service—			
Steel	521	388	297
Steel underframe	300	173	135
Freight service—			
Steel	8,445	7,329	4,600
Steel underframe	29,627	18,754	11,836

Thus, of the total 2,416 passenger train cars in service at the



The New York Central and the Lake Shore & Michigan Southern

end of 1913, 629 were steel or steel underframe, and of the total 79,796 freight train cars, 38,072 were steel or steel underframe. The increase in steel passenger cars in 1913 over 1911 was 75 per cent., and in steel underframe 122 per cent.

While, therefore, there were considerably larger sums spent for maintenance in 1913 than in 1912, it does not appear that anything more than what would be justified by the standards of maintenance accepted for some years has been spent, and certainly there can be no question of "padding" maintenance accounts.

The New York Central & Hudson River carried 55,100,000 tons of revenue freight, an increase over 1912 of 3,265,000 tons; and 53,790,000 passengers, an increase over 1912 of 2,552,000. The average haul of freight was 206 miles in 1913 and 200 miles in 1912, and the average passenger journey, 39.29 miles in 1913 and 36.54 miles in 1912. The total ton mileage, therefore, including company freight, increased 13 per cent. and passenger mileage increased 7 per cent. With this increase in business there was an increase of 256,000 freight train miles, the total in 1913 being 22,228,000, the increase, therefore, amounting to but slightly over 1 per cent.; and of freight train miles, 786,000, the total in 1913 being 27,191,000, the increase being about 3 per cent.

It is not surprising that transportation expenses in 1913 compare particularly favorably with 1912. The total transportation expenses last year amounted to $43,165,000, an increase of $2,202,000. Of this increase $619,000 was in the wages of station employees, $262,000 in train supplies and expenses, and $493,000 in loss and damage to freight, with, of course, increases in enginemen's and trainmen's wages. The 6 per cent. increase in *rates* of pay of station agents accounts for more than half of the $619,000 increase in that account. The increase in train supplies and expenses is a matter of bookkeeping, due to a somewhat confusing method of charging for car cleaning, etc., at the Grand Central station in New York.

The increase of nearly half a million dollars in the amount paid out for loss and damage to freight is a reflection, not on the management of the New York Central, but on the public spirit and intelligence of the magistrates in the towns through which the New York Central runs. In 1913 the New York Central secured the arrest of over 10,000 men for breaking into freight cars or stealing from trains, passenger or freight stations, etc., and secured over 8,000 convictions; but more than 5,000 of the men convicted were let off by the magistrates with suspended sentences, the barefaced explanation in some cases being that the county could not afford to be put to the expense of keeping these convicted thieves in jail.

Assuming, now, that $300,000 of the increase in the cost of station employees was due to higher rates of wages, $200,000 in transportation expenses to the full crew laws, $300,000 to the results of firemen's and trainmen's arbitration, and $278,820 to an increase of six cents per ton in the cost of fuel, total transportation expenses increased, exclusive of these factors, by about $1,123,000, or less than 3 per cent., with an increase of 13 per cent. in freight business and 7 per cent. in passenger business. This is really a remarkable showing, and taken in connection with the two substantial increases that were made to labor which *deserved increases,* namely, the 6 per cent. to station agents and the 6 per cent. to men in the mechanical department, it is a notably good step in the progress towards more effective operation of the property.

Of course the annual report shows the results and only suggests the manner in which these results might have been obtained or probably were obtained. The train load of revenue freight was 503 tons in 1913 and 466 tons in 1912; the train load of all freight was 569 tons in 1913, an increase over 1912 of 47 tons, or about 9 per cent. This is heavy train loading when it is remembered that the New York Central & Hudson River has a very considerable proportion of branch line mileage; that its passenger density between New York and Albany requires fast speeds even for freight trains; and the nature of its traffic requires the running of a great number of expedite freight trains and the handling of a large amount of l. c. l. shipments and bulky freight weighing very little. The gain that was made in 1913 train loading is due in part to the installation of 1,000 superheaters on engines, in part to the strengthening of bridges on certain branch lines to permit of heavy loading and the use of heavier engines on these lines, and in part to the larger proportion of bituminous coal and of grain carried in 1913. The average number of tons of freight per loaded car mile was 20.69 in 1913 and 19.84 in 1912. This gain in car loading is very much better than would appear without analysis. It must be remembered that with a grain car or coal car there is comparatively little room for any gain if loading has been good, and it was good in 1912, so that the gain had to come largely in merchandise freight. Since the New York Central has so large a tonnage of bulky commodities which are absolutely impossible of heavy car loading, such, for instance, as millinery, the opportunity for gain in car loading was narrowed down to a very small proportion of the total number of cars. Efforts were especially directed toward the better loading of l. c. l. freight, and it was here that most of the gain was made.

The following table shows the principal figures for operation in 1913 as compared with 1912:

	1913	1912
Mileage operated	3,753	3,732
Freight revenue	$68,986,965	$64,990,244
Passenger revenue	35,599,792	33,058,182
Total operating revenue	116,904,304	109,697,588
Maintenance of way and structures	16,941,987	14,649,065
Maintenance of equipment	22,584,246	20,419,109
Traffic expenses	2,284,267	2,309,616
Transportation expenses	43,165,465	40,963,894
General expenses	2,956,075	2,788,154
Total operating expenses	87,932,041	81,129,839
Taxes	6,356,546	5,893,996
Operating income	22,670,525	22,997,780
Gross corporate income	39,338,754	39,877,922
Net corporate income	13,243,558	13,882,693
Dividends	11,243,021	11,136,465
Surplus	2,000,537	2,746,228

LAKE SHORE & MICHIGAN SOUTHERN

THE Lake Shore & Michigan Southern, which is sometimes spoken of as the gold mine of the New York Central system, earning the largest gross in its history in 1913, had a smaller surplus of profits to invest in the property than in any year since 1908. As some offset, however, to this showing, the Lake Shore spent very substantially larger sums on maintenance than it has in any recent year. Gross earnings in 1913 were $57,942,000, or 6.74 per cent. more than in 1912, which was the best previous year in the company's history; net was $15,497,000, a decrease of $3,252,000; and the surplus available for, and actually invested in the property after the payment of dividends was $3,488,000, as against $7,584,000 in 1912.

The Lake Shore comes as near combining the various ideals of a transportation machine, with as few of the natural difficulties of operation as any large railroad in the United States. If an unwise Interstate Commerce Commission were to force rate reductions and additional expenditures past the point of confiscation, the Lake Shore would be the last of its competitors to go under. Its situation in this respect is, of course, the result of its magnificent natural location, the development of the territory through which it runs, its own conservative management in the past, the reinvestment in the property of very large sums from earnings, and the advantage which it has, through the excellence of its service, in competition.

The Lake Shore operates 1,853 miles of line. Its freight density is 4,083,000 (ton miles per mile of road) and its passenger density 437,000 (passenger miles per mile of road). Of the total mileage of road operated 620 miles has second track, 363 third track and 268 fourth track. The earnings per mile of road were $31,055 in 1913, and $28,993 in 1912. The revenue per ton per mile was 5.45 mills in 1913 and 5.29 mills in 1912, and the revenue per passenger per mile, 1.914 cents in 1913 and 1.939 cents in 1912.

In 1913 the road handled the increase in ton mileage of 3 per cent. with an increase of about 3 per cent. in freight train mileage, and the increase of about 11 per cent. in passenger mileage with an increase of less than 6 per cent. in passenger train miles. The revenue freight train load in 1912 was 693 tons, and in 1913 689 tons; and the train load of all freight, including company

freight, 731 tons in 1912 and 735 in 1913. The average length of haul of revenue freight was 164 miles in 1913 and 167 in 1912; the average number of passengers per train mile was 66.58 in 1913 and 63.18 in 1912; and the average passenger journey was 65 miles in 1913 and 63 miles in 1912.

The following table shows the percentage of each class of expenses to total operating revenues:

	1913	1912
Maintenance of way and structures	13.11	12.00
Maintenance of equipment	21.52	17.10
Traffic expenses	1.85	1.77
Transportation expenses	34.79	32.79
General expenses	1.98	1.80
Total	73.25	65.46

Seventy-three is entirely too high an operating ratio for a road like the Lake Shore, even with its comparatively low ton mile rate of 5.45 mills and its large proportion of passenger business. The increase in transportation expenses is in part due to increased rates of pay and in part to the greater number of men required to handle the larger business. It must be remembered in comparing 1913 with 1912 that the Lake Shore made a particularly good showing in 1912, so that one would hardly expect to see large gains in operating economies in 1913 as compared with 1912.

Maintenance expenditures on the Lake Shore are high, and during the greater part of 1913 the company apparently pursued a vigorous policy of putting its property into the very best possible shape. There were 1,054,000 creosoted ties put into track in 1913 as compared with 934,000 in 1912; the average price in 1913 being 92 cents, and in 1912, 90 cents. There were 18,508 tons of 100-lb. rail laid last year, as compared with 12,062 tons the year before, and 7,257 tons of 80-lb., as compared with 7,132 the year before.

Like the New York Central, the Lake Shore made considerable gains in fuel economy. The pounds of fuel per locomotive mile in freight service was 208 in 1913, as against 214 in 1912; and in passenger service, 106, as against 108.

The balance sheet at the end of 1913 shows cash on hand of $3,721,000, as compared with $6,235,000 at the beginning of the year. Loans and bills receivable, amounting to $9,329,000 at the beginning of the year, amounted to $20,830,000 at the end of the year; the principal items of increase being a loan of $6,404,000 to the Cleveland, Cincinnati, Chicago & St. Louis, and $2,000,000 to the New York Central & Hudson River. Working liabilities at the beginning of the year totaled $18,916,000, of which $11,648,000 was short term notes. At the end of the year these short term notes had been renewed and additional notes issued, making the total $23,768,000 included in working liabilities of $31,454,000. Working assets, which include cash, marketable securities, loans and bills receivable, etc., was $142,092,000 at the end of 1913, and $134,332,000 at the beginning of the year.

The company spent for additions and betterments to the property during 1913, $4,920,000, of which $1,579,000 was for yard improvements, the most extensive of which was the work at Air Line Junction. Additions and betterments to shops, engine houses and fuel stations cost $922,000, and roadway and bridge improvements, $719,000. There was spent for the installation of superheaters on locomotives $86,000, and for the application of steel underframes, steel roofs, etc., for freight cars, $123,000.

The following table shows the principal figures for operation in 1913 and 1912:

	1913	1912
Average mileage operated	1,853	1,872
Freight revenue	$38,434,442	$36,371,244
Passenger revenue	13,025,694	11,835,199
Total operating revenues	57,397,058	53,793,145
Maintenance of way and structures	7,593,610	6,516,212
Maintenance of equipment	12,471,741	9,283,833
Traffic expenses	1,071,648	961,762
Transportation expenses	20,158,292	17,797,334
General expenses	1,149,918	975,504
Total operating expenses	42,445,209	35,534,644
Taxes	2,126,438	1,771,098
Operating income	13,481,276	17,093,279
Gross corporate income	23,954,488	27,442,055
Net corporate income	12,488,340	16,584,383
Dividends	9,000,000	9,000,000
Surplus	3,488,340	7,584,384

Letters to the Editor

POSITIVE VS. NEGATIVE CLASSIFICATION SIGNALS

San Francisco, March 2, 1914.

To the Editor of the Railway Age Gazette:

Is not the argument for changing classification signals being carried to an unreasonable extreme? I should like to ask your correspondent, P. T. D., what excuse a conductor or engineer would have for calling 1st 18 "1st 14" when both schedules were due. It will be asked how then will they know what train it was; but if they are railroad men and know the game they will flag the next train and find out whether it is 1st 14 or 1st 18; then they will know what the leading train was, and there is no reasonable excuse for a collision. We may have collisions because of less important things than this if the men do not know their business, and attend to it.

I do not approve of further complicating the present system. The majority of trains run are not sections, therefore the system proposed by P. T. D. would cause the display of yellow flags or lights on too many of our trains. Our present system is adequate if we take the pains to properly educate our employees.

However, as a "safety first" proposition I would suggest that, instead of further complicating our signals by adding an additional color for sections, we adopt a standard train indicator on all engines. Then perhaps we may be able to eliminate all signal lamps and flags for sections.

Wm. Nichols,
Chairman, Board of Examiners, Southern Pacific Company.

SUPER-ELEVATION ON CURVES

Duluth, Minn., March 12, 1914.

To the Editor of the Railway Age Gazette:

The editor's note on V. K. Hendrick's letter on page 458 of your issue of March 6, touches on a topic worthy of the most serious attention and the fullest investigation of the profession. "The adjustment of the elevation on curves of single track lines for high speed passenger trains and slow tonnage freight trains always presents a puzzling problem," largely because of lack of that certain knowledge of which original research is the basis.

It is axiomatic that a railway track used as a highway for both freight and passenger traffic must be so constructed and maintained as to be safe and suitable for both classes of business. Speed features the passenger service. Tonnage features the freight service. Assuming that excessive super-elevation on curves produces increased train resistance, and that too little super-elevation decreases safety, such compromise must be made as is safest for high speeds and most economical for low speeds: or the speeds must be lessened and tonnage ratings reduced. There appears to be a difference of opinion as to the sufficiency of super-elevation for high speeds.

There is undoubtedly a lack of scientific knowledge of the suitability of high super-elevation for low speeds. The investigator is forced to the early and astonishing conclusion that we do not know how much more a locomotive can pull on straight track than around a curve! If the super-elevation on the curve is to be altered we still do not know how much. It may cost $50,000 to run an exhaustive series of train resistance tests to find out. The importance of the results would seem to be far in excess of any such amount.

E. R. Lewis,
Assistant to General Manager, Duluth, South Shore & Atlantic.

Railway Construction in Cuba.—The Habana Central has been given permission by the Cuban government to construct a new branch railway line from San Jose de Las Lajas to Jaruco, and from thence to Santa Cruz del Norte, Habana province.

The Position of the Pennsylvania Railroad*

Challenge to the Public to Serve Its Own Interest by Allowing Railroads to Continue a Progressive Policy

In appealing to the commission, on behalf of this company and its system, for the moderate increase of rates covered by the application, I beg to state that I do so with a profound conviction, based upon an extensive railroad experience, that the application should be granted.

NECESSITY FOR RATE INCREASE

This rate increase is required for the Pennsylvania system:

First.—Because the present rates do not yield a fair return on the amount invested in the railroad and equipment, and are not an adequate return for the services rendered and facilities provided for public use.

Second.—Because, despite the company's utmost efforts to offset increasing costs by the application of the most modern operating methods, the return on its investment has been continuously falling, and unless this decline is arrested, it will undermine the company's resources and cripple its power to satisfactorily serve the public.

Third.—Because the investing public, upon whom we depend for securing capital on reasonable terms, seeing the decline in profits, and in the return on the capital already invested, and being aware of the increases in wages, taxes and other items, and of expenditures of various kinds forced upon the railroads by legislative action, and the interest commanded by new capital, regards the situation with some concern and needs to be reassured that not only will our company but the railway companies generally obtain reasonable compensation to offset the increase in expenses and the higher interest charges and enable them at least to maintain their current rates of dividend.

Fourth.—Because, at a time when capital everywhere is commanding a higher return than for many years past, it is necessary to earn expanding, not diminishing, profits, in order to obtain adequate capital at fair interest rates as needed for new lines, equipment and facilities, so as not to stop the expansion of the country's traffic, which nearly doubles every decade.

PENNSYLVANIA SYSTEM

The Pennsylvania system consists of many strong and weak lines, all feeding and supplementing each other, and a careful examination of the statements previously submitted to the commission emphasizes the necessity for increased revenue for this system quite as much as for some of the less prosperous roads.

MILEAGE

The lines east and west of Pittsburgh embrace about 90 corporations with a road mileage of 10,818 and 24,194 miles of track, and total capitalization of over twelve hundred millions in the hands of the public, and with total operating revenues of $382,000,000 per annum.

RELATION BETWEEN EARNINGS AND CAPITALIZATION

Roundly $1,000,000,000 of system capitalization is represented by road and equipment, as against about $382,000,000 of system gross operating revenues, giving a ratio of approximately two and three-quarter dollars of capital for each dollar of earnings. The average ratio of capital to earnings on all American railways is about five to one, while on English railways it is ten to one.

The Pennsylvania system is very conservatively capitalized and the figures show that the failure to earn an adequate return is not due to excessive capitalization nor to a decrease in traffic, or revenues taken as a whole, but that freight is being carried at very low rates and net operating income is deficient; and in recent years this tendency is at work in an accelerating ratio.

The position of the Pennsylvania system is clearly revealed in the following brief digest:

In ten years (June 30, 1903, to June 30, 1913):

Property investment in railroad and equipment has increased..	530 millions
Operating revenues increased.....	149 millions
Operating expenses increased.....	129 millions
Net operating income (after paying taxes, rents and equipment hire) increased.....	12 millions

or a return of only 2.23 per cent. on the increased investment.

In the last three years (1911-1912-1913):

Property investment in railroad and equipment has increased..	207 millions
Operating revenues increased.....	47 millions
Operating expenses increased.....	54 millions
Net operating income (after paying taxes, rents and equipment hire) *decreased*.....	11 millions

Of this increase in property investment, amounting to 207 million dollars, 108 million dollars represents money spent in the construction of the New York tunnel and terminal improvement, which commenced in 1901, but as it was not completed and the lines embraced therein were not operated until near the close of 1910, there were no earnings to place against these expenditures, and, in accordance with the accounting practice of the commission, the total investment was not included in property investment accounts until the fiscal year ending June 30, 1911.

PHYSICAL CONDITIONS IN 1903 AND THE REMEDIES APPLIED

That these results demand serious and immediate consideration there can be no doubt.

Let me briefly state the conditions which confronted the Pennsylvania Railroad Company in 1903, the beginning of the ten-year period, which will illustrate the necessities for these large expenditures because on its main line the traffic of the system largely concentrates. In 1902 there was a remarkable development of business throughout the country, particularly in the section served by Pennsylvania Railroad, and the demand for transportation could not be adequately supplied with the then existing facilities. The system, East and West, in 1902 had an increase of almost two billion ton miles of freight, which was about 9 per cent. over the previous year, and the tonnage mileage aggregated almost twenty-four billion for the entire system. The industries depending on our lines demanded a much larger and quicker movement, but we were unable to properly accommodate the traffic, as the limit of the capacity of the running tracks and yards had been reached and overcrowding prevented a free movement. This was particularly true on the main line between Pittsburgh and Philadelphia, where the ton miles amounted to over eight and a half billion, while the density was almost seventeen million ton miles for every mile of road. Now this condition was repugnant to the policy and practice of our company; but it was not practicable, even by large expenditures, to at once create sufficient facilities to accommodate the exceptional growth of traffic.

After careful consideration the management decided that a series of exceptional improvements were absolutely essential to promptly and economically handle the present and prospective traffic and meet public requirements. These expenditures may be divided into three important classes:

1. Relief lines for the principal purpose of enabling freight traffic to freely move day and night; the construction of additional running tracks; belt lines and cut-off lines to keep the through freight traffic out of the big cities, thereby avoiding terminal congestion and permitting the economical handling and growth of local traffic—freight and passenger; electrification of lines; automatic signaling; revision of lines by reducing the grades and eliminating curvature; track elevation to avoid grade

*Testimony of Samuel Rea, president of the Pennsylvania Railroad Company, before the Interstate Commerce Commission April 3, in the matter of increased freight rates.

crossings; new extensions and branches to open up the country and bring its natural resources to the markets.

2. New yards and freight and passenger stations; enlargement and improvement of existing yards and stations.

3. Additional equipment; steel cars for freight and passenger traffic; and more powerful locomotives.

For these purposes the property investment account of the system, I have stated, increased in the last ten years, 530 millions; of this about 366 millions were provided out of new capital, and 164 millions out of surplus.

This expenditure on the system in this period was not for an expansion of its territory, but primarily for intensive development. The road mileage increased in the ten-year period only 3.9 per cent., while the total mileage of all tracks and sidings in the same period increased from 19,659 to 24,194 or 23.1 per cent. It is not difficult to describe in a few words the extensive improvements of this ten-year period, but it is more difficult to convey the underlying responsibility of obtaining capital and carrying out the work. For instance, railroad yards were reconstructed, enlarged and modernized; and equipment was increased by very many cars and locomotives, but I will illustrate their extensive character and essential importance to a system like ours. In the year 1913 over two million loaded and empty cars in through freight movement passed over the main line at Lewistown Junction; and in five of these freight yards alone the mileage is equal to a single track railroad from New York to Pittsburgh. So far as equipment is concerned, in this ten-year period the number of locomotives increased 41.5 per cent., while their tractive power increased 80 per cent., or 99,521,170 additional tractive pounds; passenger cars, 33.5 per cent., freight cars, 22.5 per cent., and their tonnage capacity, 62.2 per cent., sufficient for 4,600,032 additional tons. The necessity and benefit of these large outlays to the railroad and to the public during that period have been proved; and half measures would not have cured the situation and enabled us to perform our full duty to the public in taking care of the increased traffic. Our average freight train load on the system in 1903 was 436 revenue tons, and in 1913 was 582 revenue tons, an increase of over 33 per cent., and the average tonnage per loaded car rose from 21.14 tons to 25.71 tons. During the same period, 1903-1913, the freight traffic density increased 61.2 per cent., and the revenue ton mileage increased 70.2 per cent., but train mileage only 27.6 per cent. If this economical handling of the traffic had not been effected, the company's condition would have been serious, because the average revenue per ton per mile dropped from 6.42 mills to 6.06 mills, on the system.

This illustrates our efforts on the entire system, for during this period rising costs of all kinds had to be borne, making great inroads on our revenues, although every effort was made to control the situation and handle the traffic with despatch and economy. The results are before you and are rather disappointing.

On the property investment of the entire system the net operating income produced 7.49 per cent. in 1903; 7.41 per cent. in 1910; and only 5.48 per cent. in 1913. If we add to the property investment the expenditures for additions and betterments provided out of surplus income from 1887, the system earned only 6.66 per cent. on its investment in railroad and equipment in 1903, and 4.78 per cent. in 1913.

CAUSES FOR PRESENT SITUATION

This present situation is the result of factors, the more important of which the company cannot change or modify, such as:

First.—Its inability in selling public transportation to obtain rates that would give it an adequate return upon the investment in railroad and equipment, or for the transportation service rendered and facilities provided.

Second.—Increased expenses (over many of which the company has no control) caused by increased rates of pay of employees; increased taxes; legislation, both federal and state, such as extra crew laws, hours of service laws, boiler inspection laws, workmen's compensation laws, etc. Other increased expenses result from the necessity of larger and more expensive terminals and stations both for passenger and freight, steel cars in place of wooden cars, which in turn make necessary heavier and improved bridges, elimination of grade crossings, maintenance and operation of interlocking and automatic signals, more substantial standards of roadbed to carry the heavier equipment and heavier train and car loads, increased fuel, tie and other costs. Any advantage that may have accrued as the result of more substantial standards of roadbed, heavier car loads and train loads has been more than offset by higher taxes, wages and other increasing costs, the end of which has not been reached.

In this ten-year period, we did not confine ourselves to large expenditures for improvements in providing tracks, equipment and facilities, but we put forth every effort for effective and economical operations and maintenance. This resulted in more costly maintenance, not only in wages but also in materials. The number and movement of more trains with the heavier engines, steel cars, heavier loads, required more vigilant supervision and a higher standard of maintenance; heavier and more costly bridges and bridge repairs and renewals; the 100-lb. rail had to be made the standard on all of our branch lines as well as the main line and we have seriously before us the desirability of a 125-lb. rail or heavier rails for the main lines; the number of ties per rail was increased; more tie plates and stronger fastenings are used; improved track drainage and foundation work, and greater depth of ballast, for the stability of the track structure was required; shop improvements and enlargement requiring more men and machinery for the quicker repair of larger and heavier equipment; the maintenance and use of extensive automatic block and interlocking signal systems. Every step was taken with regard to the maintenance of the track, equipment and service, to accord with the traditions of the company for a safe standard of railroad, which in the end is the most economical. Nor has the Pennsylvania system tried to depart from its practice that the proper amount of working expenses and depreciation should be fairly and not excessively made within the ability of the company's revenues and plainly reflected in its accounts.

THE COMPANY'S POSITION

It may be urged, however, that the parent company (the Pennsylvania Railroad Company), on whose main and leased lines the traffic of the system converges, is assured of net operating income so large as not to require additional revenue.

I would not create the impression that a 5 per cent. rate advance is necessary to the maintenance of the Pennsylvania Railroad Company's dividends in the immediate future, although, if it cannot be obtained, it may be necessary for the company to curtail the necessary provision to preserve that high standard which the public has grown to expect from it. The facts, I believe, will show that the Pennsylvania Railroad is not earning an adequate or reasonable return on the actual money expended for its railroad and equipment, or for the value of the service rendered and the facilities furnished. Yet this company is in a unique position: It runs directly across central Pennsylvania, through a territory rich in natural resources and which prior to its construction had been opened as a trade route by private turnpikes, and by canals and railroads owned and operated by the state; its traffic is supplemented by the large tonnage and passenger business which it receives as an important link in the transcontinental railway systems of the country; its capital stock represents actual cash outlay and has not been watered; it has enjoyed a continuous conservative management by trained railroad men and directors, who are residents of the state of Pennsylvania, experienced in commercial and financial matters and who give constant attention to its affairs; it has always applied to betterments a substantial portion of its earnings, instead of distributing all of them as divi-

dends to its shareholders, a large percentage of whom are citizens of the state. Every effort has been made (the criticism of which we leave to the public) to maintain a reliable standard of public service, to conserve the property; to advance the welfare of the employees; to assure the support of the stockholders and bondholders in furnishing new capital on fair conditions; to add to the prosperity of the territory it serves; and to obtain the greatest efficiency in operation, not sporadically but continuously, in every department.

Any general idea that the Pennsylvania Railroad Company's position is so strong as not to need any additional revenue, is not correct, because only 4.84 per cent. was earned on the money invested in the railroad and equipment of the Pennsylvania Railroad Company and the lines east of Pittsburgh directly operated by it during the year ended June 30, 1913.

Therefore, had the Pennsylvania Railroad Company disbursed its entire surplus in dividends and issued stock or bonds for all additions and betterments instead of adhering to its policy and practice of providing some of them from income, the effect might readily be estimated: first, on the lower dividends it would be forced to pay, and, secondly, the difficulty and increased cost of raising new capital.

STOCKHOLDERS' POSITION

But it is equitable to review the position of the stockholders under this policy, to ascertain whether they have received an undue return.

This company has paid a return on the stock in every year since its incorporation, but in the past 36 years the cash dividends have never exceeded 6 per cent. per annum, except in 1881, when 8 per cent. was paid, and in 1882 and 1906, when 6½ per cent. was paid, and in 1907 when 7 per cent. was paid. Cash dividends since 1847 have averaged 6.01 per cent. on par ($50 per share).

CAPITAL STOCK SUBSCRIBED AT A PREMIUM

In considering the return paid to the stockholders it must not be forgotten that the shareholders paid premiums on new stock issued, amounting in all to over $43,000,000, and the entire amount of these premiums has been *used for capital purposes.* These premiums were at the rate of 20 per cent. in 1901, and 20 per cent. in 1903 on issues of new stock, while premiums on capital stock issued to retire convertible bonds dated 1902 and 1905 were at the rate of 40 per cent. and 50 per cent. respectively. Therefore, the total premiums used for capital purposes but not represented by any capital obligations, including premiums on stocks sold in the market and stock issued in the acquisition of branch lines, aggregate in all $43,000,000, as heretofore stated.

Further, the market price of our stock today is very little above par. Under the prevailing market price and dividends of 6 per cent. per annum on par, shareholders who subscribed for stock at $60 per share (120 per cent.) have sustained a loss on their investment, while those who subscribed to bonds converted into stock at $70 per share (140 per cent.) and at $75 (150 per cent.) have a much heavier loss.

Our company is owned by over 89,000 stockholders, and the average holding is about 113 shares. Fully 48 per cent. of this number is made up of women, and two-thirds of the stockholders do not hold over $2,500 each of stock.

Since 1907 our large body of stockholders, like everybody else, have had to face the higher cost of living, that is with the decreased purchasing power of the dividend. We have not been able to relieve them by any change in the rate of dividend, although it is recognized that some of them subscribed for the stock at 20 per cent. above par and their return is but 5 per cent. per annum. The bondholders who converted their holdings into stock at 140 per cent. obtain a return of only 4.29 per cent., while those who converted their bonds at the fixed rate of 150 per cent. receive only 4 per cent. per annum on their investment.

FUTURE POLICY

The stockholders have pursued a very liberal policy in using the surplus of past years for betterments and to maintain a high and safe standard of railroad service. We have raised and expended new capital only after careful consideration of each item, and in doing so have brought prosperity to the states and communities which we serve and to the country at large. But what is to be our policy in the future? The striking shrinkage of net operating income in recent years compels us to review and reconsider it; we cannot stand still; we must advance with a growing country for which there is yet much to be done, or go backwards. If the railroads are to be crippled, there is swept away very much of the economic foundation for national progress in the life of every citizen. We have no alternative but to apply for relief, not that we may continue to exist, but that we may secure a firm financial basis to perform, as we have done to the best of our ability in the past, our clear duty to the public, and to those to whom we must look to provide new capital in the future.

ADDITIONAL FACILITIES MUST BE FURNISHED IN ADVANCE OF ACTUAL NECESSITY

Roughly, the traffic of the railroads of this country doubles every ten or twelve years. While this ratio may not hereafter be maintained, we know that the traffic will increase, and, therefore, that the facilities must be provided by the railroads to properly accommodate the business.

We also know that it is unwise and impossible to limit new facilities to actual and immediate necessities; that is to say, in passing from a single track railroad to a double track railroad, or from a double track railroad to a four track road, or from a four track road to a six track road, as in the case of the main line east of Pittsburgh, or in building new passenger stations, or laying out new freight terminals, we must provide for the future and plan for ten or more years ahead. Necessarily that involves a large expenditure of money that only gradually becomes productive. We know that judging from our past experience, many millions could be advantageously expended on the system in the next few years. We have confronting us a program of expenditures which we believe to be essential, some of them mainly for the benefit of the public, but all of them necessary to properly accommodate the present and future traffic, such as continuing our program of building steel cars in place of wooden cars, automatic block signals, electrification of passenger terminals, like the city of Philadelphia, electrification for freight traffic to overcome the disadvantage of mountain grades and effect operating economies; the construction of additional running tracks and enlargement of yards for freight traffic; the building of new passenger and freight stations and the enlargement and improvement of existing terminals and stations, such as in the cities of Chicago, Philadelphia, Baltimore, and at other points, negotiations for which are now being carried on with city authorities, all of which is in accordance with our practice of making adequate provision for all traffic. It is unwise, as well as unnecessary, to commit ourselves to any large fixed program of expenditures, except to say that without assurance of adequate earnings they cannot proceed, and a reasonable portion of the cost of these future enlargements and improvements ought in our judgment to be provided from surplus earnings.

MARGIN OVER DIVIDEND ESSENTIAL

We know it is essential for us to maintain adequate dividends as well as an adequate margin over the dividends if we are to obtain from the investing public the capital needed to provide the additional facilities essential to take care of the normal growth of traffic; and we must have some leeway against business depressions, which occur periodically, and for other extraordinary emergencies that arise.

INCREASED RETURN REQUIRED OR IMPROVEMENT POLICY MUST CHANGE

Many of the contemplated improvements mean expenditures from which the railroad will get no immediate adequate return, but from which the public will benefit very largely. If our in-

come is further curtailed, and the proportion thereof, which we are forced to pay for railroad operations and construction, and towards the support of communities, cities, states and the federal government, continues to increase as rapidly as within the past few years, these must first be cut from our program, because the other items, such as the building of additional tracks, rearrangement and enlargement of freight terminals, and equipment, are absolute essentials for railroad business, and must be provided or the whole machine will be clogged. Now there are a number of railways, which through lack of money, have been able to undertake only improvements of this latter class, and their net income consequently may not show a tendency so unsatisfactory as that of the Pennsylvania system in the last few years. If the Pennsylvania Railroad were to confine its expenditures to facilities exclusively to make trains move on the rails and were not to consider improvements of public service, it could go on for some time without higher rates. But looking at the question broadly it is evident that without higher rates the Pennsylvania system cannot afford to continue as heretofore the policy of improvement involving non-revenue-earning, or deferred-revenue-earning, facilities and accommodations. Moreover, if necessary improvements were delayed capital would subsequently be needed in large sums to take care of the traffic and to meet the public demand for increased facilities. This delayed expenditure, then, in bulk, could not make good the restriction to trade and commerce caused by the failure to provide in advance for such traffic.

What is the conclusion to be drawn from all of this?

1. The margin of surplus is steadily diminishing, and the company is not receiving any return either on the additional capital invested, or for the value of the service rendered and the facilities provided, for public use.

2. Had there been no surplus in earlier years, and had the whole of the improvements been paid for out of capital, the margin would now have reached the vanishing point.

3. If surplus steadily decreases, improvements, if made at all, will more and more need to be made out of new capital.

4. But if the margin of safety decreases new capital will only be raised with greater difficulty and on more onerous terms.

5. Indeed, it is questionable whether, if new capital is to continue to earn no income, the directors will be justified in attempting to raise more than a modicum of what they believe necessary, as the effect must be to reduce the percentage return on the shareholders' capital already invested.

PUBLIC INTEREST REQUIRES ALL RAILROADS TO EARN A REASONABLE RETURN.

In what I have said hitherto I have assumed that the Pennsylvania Railroad would, and ought to, continue its traditional policy of paying stable and reasonable dividends and putting back into the property a reasonable portion of its surplus for additional facilities and improvements for the public, but if we are to be prevented from securing reasonable rates, I am forced to deal with the question whether that policy is still sound. The question must be faced from two points of view—that of the stockholders, and that of the public, including in the latter all dependent on the railroads for support as well as service. From the stockholders' point of view, I desire now to say that our present dividend, unless it is absolutely secure in good and bad years, is not a fully reasonable return to our shareholders. The fact that we have not paid to our shareholders many millions of dollars earned as a profit, at very low rates, which profit might without objection, either legal or moral, have been paid out as dividends, but instead have devoted this money very largely to the improvement of the public service, entitles us to make this claim. If we are allowed to earn a net income that will make our dividends safe beyond reasonable risk the company will, I doubt not, continue its established policy of devoting a large portion of its surplus to improvements and the maintenance of a safe and high standard of transportation service. But if the security of our dividend is to be imperiled, we must do what we can to protect ourselves, and we shall be forced to seriously consider the propriety of insuring against a reduction of dividends in bad years by devoting in good years our additional earnings, not to the improvement of property devoted irrevocably to public service, but to a reserve dividend fund for our shareholders. The policy of capitalizing all improvements, betterments and additions was pursued for many years by the leading English railways, with the result that the financial position of English railway companies became unsatisfactory from the point of view both of the public and the shareholders. This policy also governed the main features of the financial conduct of the Prussian railways. In speaking before the Prussian House of Peers on May 30, 1910, Herr von Gwinner, senior manager of Der Deutsche Bank, referring to this policy on the part of the German government, made this remark, which applies with equal force to all conservatively financed railroads: "If the Pennsylvania Railroad Company were financially administered in the same manner as our Government Railways, its shares would constitute the most speculative investment on earth; in one year they would pay 2 per cent. dividends, in the next year, perhaps 7 per cent.; whereas, a well-administered undertaking like this company is trying to offer permanently stable dividends."

It is wholly in the interest of the public that a railroad should always be in a financial position strong enough to increase its facilities and equipment to properly accommodate its traffic, prospective as well as present. Can it be fairly contended in the best public interest that all of its betterments and improvements, even when non-revenue producing, should be provided out of new capital, and that it should not be permitted to earn any surplus income to devote to this purpose? The experiences of roads in this country and abroad show that, if a road, however strong, makes all the improvements from the proceeds of stock and bonds, the time may come when it must reduce or discontinue its dividends, and it cannot raise capital for necessary extensions and additions. Even assuming that it obtained permission, when that time came, to increase its capital and to raise its rates, if it needed to do so to pay interest on such expenditures, it would by no means follow either that the increase of rates would produce the additional net revenue required, or that the money market would be able and willing to furnish new capital which could not offer the prospect of earning a direct return.

Experience indicates that the practice of putting back into the property the surplus beyond a reasonable dividend is in the interest, not only of the shareholders, who thereby tend to insure the permanence of their dividend, but also of the public, who thereby insure the continuance of the provision of adequate facilities, even where they are not directly dividend earning. Is not the policy of betterments from income at least more in the public interest than dividing the entire net profits?

In all of this it should be recalled that while improvements and betterments made out of surplus income become the property of the shareholders, they are property dedicated to a public use, and as such subject to public regulation, and only by the pursuit of this policy for over 50 years has the Pennsylvania Railroad Company been able to maintain its dividends; and its surplus is not excessive.

CONCLUSION

In concluding, may I say on behalf of the Pennsylvania system that we do not want the commission to feel that we would join in requesting either an increase of rates not urgently required, or an increase in rates that were already high compared with other lines on this continent or abroad, or that were not immediately justified. The railroads have, by the progress of the country, by improved management and continued efforts for better operating traffic and financial results, and by the assistance of the Interstate Commerce Commission, emerged from the very weak position they occupied in 1898, and obtained a very low average revenue per ton per mile above the danger line, which,

with the country's growth, has kept many railroads from failure. The increase now sought would only moderately improve that average revenue and would partially meet the higher costs sustained by the roads. If the freight revenues of the Pennsylvania system in 1913 had been 5 per cent. greater, the net operating revenue would have produced a return on the cost of the railroad and equipment of 6.42 per cent., instead of 5.48 per cent. In 1910 we felt that conditions justified an increase, but with improving gross earnings and the better outlook for the railroads generally then existing it did not so impress the commission, nor was the public prepared for it. Now conditions are worse; our expenditures have since then been larger, our costs higher; no return on many of our lines has been earned, and on almost all of them the return has been inadequate; with a return of only 2.23 per cent. earned on the increased investment in road and equipment in the ten years ending June 30, 1913; with a substantial decrease in net operating income for the three years ending 1913; and the falling off in revenues without any abatement in taxes, wages and other items since June 30, 1913; the outlook is far from satisfactory. Now we have as much public support as can possibly be given to a plea almost national in its scope and effect, and we firmly believe our application for a very moderate freight rate increase is in accord with the best public interest.

I therefore desire to say that we have put before the commission the position of the Pennsylvania Railroad system. That it discloses a distinct trend downwards, which recently has become very rapid, will not be disputed. Our position is not so strong as it was. We have in more prosperous times given to the public a good share in our prosperity. We desire to continue to live up to a high standard of public service, but whether we can do so or not depends on the decision of this commission. Without fair returns from reasonable rates we cannot induce the public to furnish adequate capital for the public requirements along our system, except at high interest rates. Unless the gap between receipts and expenditures can be widened, we must begin to retrench, and retrenchment must begin on betterments and improvements not directly necessary to the movement of trains. We should be very reluctant to do this, as it would be to run counter to our traditions and practice of half a century, and we are sure that it would not be in the public interest, and we do not believe the public desire it. We therefore respectfully request the commission to grant the increase of rates for which application has been made.

RAILWAY CREDIT AND INCREASED COMPETITION FOR CAPITAL

W. H. Williams, third vice-president of the Delaware & Hudson, in his testimony before the Interstate Commerce Commission, in connection with the application of the railroads for authority to make an increase in freight rates, presented an elaborate statement, filling 69 printed pages, giving the evidence to support the claim that the higher cost of capital must be considered as one of the reasons making necessary an increase in the rates of transportation.

Mr. Williams shows, by statistics covering a series of years, how the competitive position of the railroads in the money market has been impaired by increases in the public and the private demand for capital, increases in the rates of interest offered for loans to cities, and the enhanced credit of securities resting on manufacturing enterprises. Taking the records of the New York market and tabulating the average prices during each calendar year from 1903 to 1913 (using only the first half of 1913), he shows that the rate of interest yielded on bonds to have increased materially in all fields except the industrial. Comparing the earlier with the later year, government bonds yielded 3.25 and 3.91; public utility bonds 4.63 and 4.90; selected railroad bonds, 4.10 and 4.41; Eastern railroad bonds, 4.06 and 4.47.

The depression in securities caused by the panic of 1907 lasted but a short time, and recovery was quite general before the end of 1908. Since 1909, depreciation has been confined mainly to high grade securities, which is not the case at times when the trouble is due to business depression. State and municipal securities have fallen in price because of the general rise in interest rates and also because of the immense increase in the amount of these securities. A table is given showing that in 1906 the amount of state and municipal bonds issued was about 20 million, while in 1912 the amount was 383 million, or nearly double that of the former year; and there has been a constant tendency to put out bonds at higher interest rates.

The railroads have found difficulty in raising new capital because their mortgages have in most cases been closed, and not so good security can be offered as formerly; also because of decreasing net earnings, because of lower rates and higher expenses; legal restrictions on the investments of savings banks, etc., and discrimination against railroad securities in the matter of exemption from taxation as compared with municipal and state bonds; and other causes. The inability of the roads to earn a satisfactory income on their increased capital is set forth in detail. Comparing property investments in 1903 with 1913, it appears that 38 Eastern roads increased their investment 46 per cent., but were able to increase net operating income only 34 per cent. Improvements such as the elimination of grade crossings, elevation of tracks, electrification of terminals, etc., entail large capital expenditures without corresponding net return.

In a copious index, Mr. Williams explains in detail the data used by him in reaching the results stated. His general conclusions are that capital has demanded an increased return while railroads have been forced to meet growing competition in the industrial field, from public utilities and from industrial enterprises which were able to offer higher rates of interest, while governments have increased their demands for capital and have raised their taxes; and the railroads have in such a large degree been unable to earn satisfactory incomes on additional capital that the factor of safety of railroad investments has been reduced.

AUTOMATIC WEIGHING DEVICE TO BE TESTED ON RAILWAY CARS IN INDIA.—The Railway Board of India has recently given its sanction to the trial of a patent weighing attachment by the Bengal-Nagpur Railway and certain other lines. The invention is a device fixed to each car for the purpose of indicating automatically the car's lading. The railway authorities believe that the attachment is of special value to coal companies, because it will reduce the losses due to overweight otherwise passing unperceived. It is expected also that by means of the device the delay which takes place in passing each car separately over the ordinary track scale will be avoided.

RAILWAY CONCESSION IN CHINA.—Some time ago an agreement was made whereby German capital will build two railways in China. One of these will extend from Kaomi, a point to the northwest of Tsingtao, to Ichowfu and Hanchwang. This line will provide a much needed means of communication through three important districts. Hanchwang is the point where the German and British built sections of the Tsinpu railway meet; it is also an important Grand Canal port. Ichowfu is a coal center, and it is expected that surveys may reveal other mineral deposits, such as coal, antimony, iron and lead along the line. A second line will extend from Tsinanfu to a point between Shuntchfu and Sinsiang on the Peking-Hankow line to be decided later. This line will make an east to west connection between the Tsingpu railway at Tsinanfu, where the Kiaotsi railway joins the Tientsin-Pakow and the Peking-Hankow railways. It will open up a country of great economic possibilities. The new lines will also link up the trunk line from Tientsin to Shanghai by way of the Pukow-Nanking and the Peking-Hankow systems. The railroads will be built as Chinese state railroads by German capital under German engineers. When they are completed they will be under German management. The probable cost is $20,000,000.

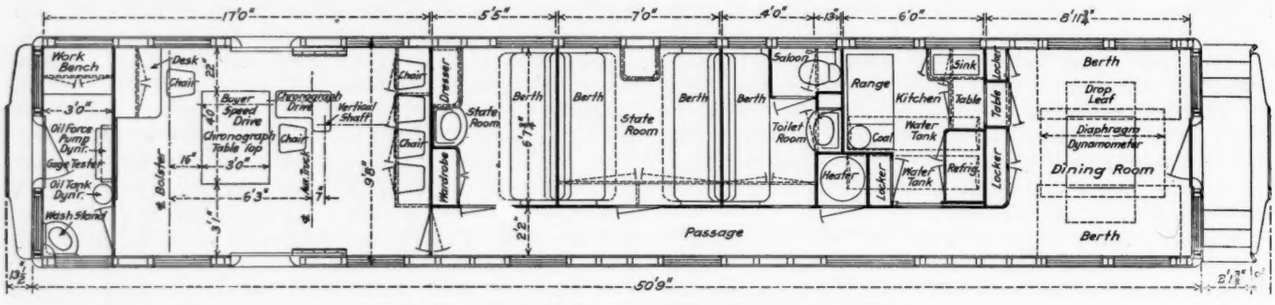
New Dynamometer Car for the Baltimore & Ohio

Designed for Separate Dynamometers for Pulling and Buffing Stresses with Suitable Capacities for Each

Dynamometer car No. 930, which was constructed at the Mount Clare shops and completed in April, 1913, is the fourth dynamometer car built by the Baltimore & Ohio, and is equipped for making any kind of road test.

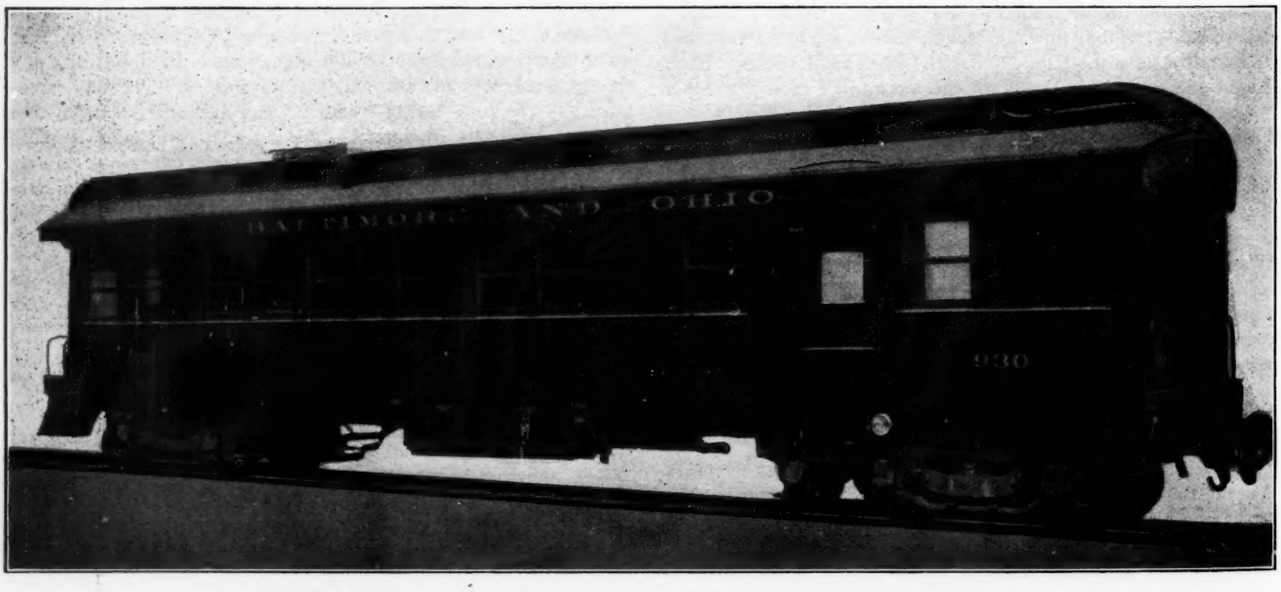
The previous cars were of low capacity compared with the new car. The first car, No. 788, was built in 1885 and was equipped with a hydrostatic dynamometer of only 25,000 lb. capacity; the second car was a remodeling of this car in 1891, and the application of a spring dynamometer of 40,000 lb. capacity; the third, the X-10, constructed in 1899, had a spring dynamometer of 50,000 lb. capacity, while the present car has a hydrostatic dynamometer of 200,000 lb. capacity. The car is 50 ft. 9 in. long over end sills. A pull dynamometer is placed at one end having a maximum capacity of 200,000 lb., and a maximum movement of the recording point of 9 in. For the other end of the car a dynamometer of the double diaphragm type, having a maximum capacity in compression of 1,500,000 lb., and in tension of 1,000,000 lb., has been designed but has not yet been installed in the car; the underframe, however, was built for this capacity.

The car is built with a platform at one end, the opposite end, which carries the drawbar connected to the pull dynamometer, being blind. The underframe is of the structural steel type. The side sills are 6 in., 15.6 lb. Z bars, while the center sills consist of two web plates ¾ in. thick and top and bottom cover plates ½ in. thick, connected by angles. The completed center sill is 3 ft. 2½ in. wide at the top and 1 ft. 10 in. deep. The superstructure is built of wood, with metal reinforced end framing. The two four-wheel trucks are similar to those used under heavy passenger tenders and have a wheel base of 5 ft. 10 in. In addition to these trucks there is an auxiliary two-wheel truck of special design to drive the paper mechanism. The tires of this truck are case hardened and ground to a circumference of 75 in.



Floor Plan of the Baltimore & Ohio Dynamometer Car

The operating room is located directly over the dynamometer cylinder, as may be seen from the floor plan. The forward space just inside the door is partitioned off to provide a workroom, and also to prevent the dirt and cinders from entering the operating room when the door is opened. Back of the operating room is an aisle, and on the opposite side of the car are two staterooms, toilets and the kitchen. At the rear end, over the shock dynamometer, is the dining room table, and in the dining room there are also two upper berths. Movements of the shock dynamometer will be recorded on the chronograph table in the operating room.



Dynamometer Car Recently Placed in Service on the Baltimore & Ohio

The car is lighted by electricity, an Edison storage battery with a capacity of 300 ampere hours being located underneath the car, and there is also an axle generator charging at speeds

from 10 miles an hour up. Heating may be either by direct steam or by a Baker heater system installed in the car.

For a lookout the operating room is fitted with a side door at each side, each side of the door being equipped with mirrors, so that the exterior observations can be made through the glass of the door, or, if necessary, the doors can be opened for this purpose.

In order to do away with piston rod packing in the dynamometer the drawbar is connected to a crosshead in front of the cylinder, and another crosshead in the rear of the cylinder is connected to the first by two rods on either side of the cylinder; the latter crosshead acts on a piston rod in compression through the rear head of the cylinder. With this arrangement no buffing shocks are recorded by this cylinder, but this is not required on resistance tests, and such shocks can be recorded by the other dynamometer.

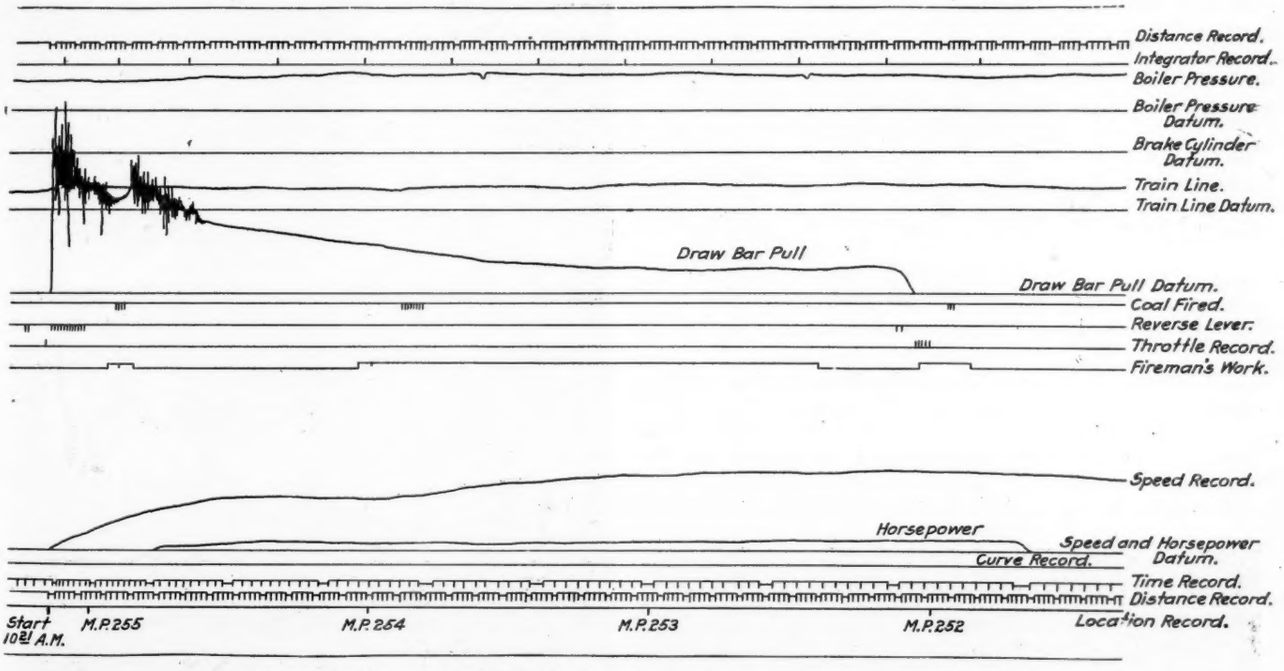
The interior of the operating room is shown in one of the illustrations. This shows the gage board at the left, the switch board at the middle right and the axle light switchboard at the right. In the foreground is seen the table fitted with an aluminum top, the 30 in. tape passing over it, and the forward bank of recording pens; the second bank of recording pens cannot be seen in the engraving, as it is just back of the forward bank. Three gages can be seen on the table; the one at the left shows the drawbar pull as does the large center gage on the gage board. The gage near the center shows the developed horse power; that at the right shows the speed in miles per hour, while the horizontal gage case just below it contains the integrator which operates in a dust-proof case.

Another of the engravings shows a specimen of the 30 in. tape taken from an actual test. All the pens were in operation with the exception of the extra pens. All the pens are placed in line, with the exception of the datum pens, pressure pens and horse power pens, which are 5 in. behind on the table and record.

As previously stated, the dynamometer is of the direct pull cylinder type mounted below the car floor, and arranged for pull service only. A suitable tension rod connects with standard friction draft gear in one end of the car. The cylinder is of such diameter that the area of the piston is 250 sq. in., which gives an easy calibration, as a drawbar pull causing 4 lb. per sq. in. pressure equals 1,000 lb. drawbar pull. The cylinder is made of a special grade of cast iron, and is mounted as a part of the center sill of the car. Suitable pipe connections are made for filling with oil, and also transmitting the oil pressure to the chronograph table.

The recording machine drive, on account of accuracy, is taken from a special auxiliary axle, provided with wide flat tired wheels of such diameter that each revolution of the auxiliary axle corresponds to 75 in. of car travel. A suitable worm and worm gear in this housing gives an 8 to 1 reduction between the auxiliary axle and a shaft extending vertically into the car. This shaft, therefore, makes one revolution in every 50 ft. of car travel. The connection to the mechanism in the car is made through a telescope and two universal joints.

All gearing in connection with the various paper speeds, motor drive, distance contacts and constant direction gear of the paper travel is, as far as possible, placed in an oil-filled transmission case, on the cover of which are mounted the centrifugal gear shifter and a small gear case for driving the Boyer speed recorder. The vertical shaft from the axle drive enters the transmission case from below, and actuates the constant direction gear, which in turn reduces the speed one-half and connects with the distance contact shafts. This shaft extending



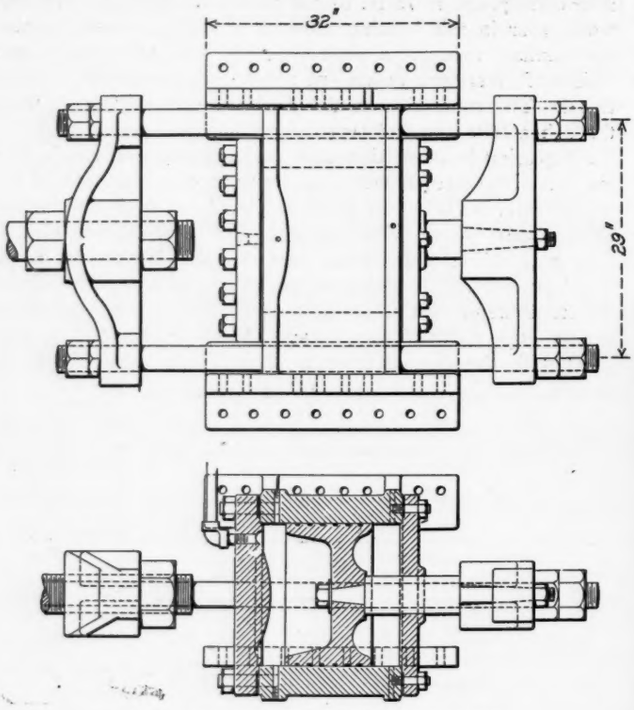
Specimen of the Records Obtained on the Baltimore & Ohio Dynamometer Car

from the transmission case makes one revolution in 100 ft. of car travel, and carries suitable contacts and commutators, giving distance contacts every 100, 25 and 20 ft. of car travel.

The constant speed motor is connected at the side of the transmission case, and provides the constant time base drive for the chronograph. The various gearing controls are connected with two levers on the side of the transmission case, the outer lever controlling the gear shaft and the inner lever the clutch position. Each of these controls has three notches which in the case of the gear shaft lever corresponds with the three paper speeds, the forward notch giving the highest paper speeds. The three clutch positions correspond with motor drive in the forward position, neutral in the center position, and distance drive in the rear position. The clutch lever should always be placed in the neutral position before the gears are shifted, especially when using the motor drive or high speed distance drive. The chronograph drive shaft is connected at the projecting shaft of the transmission, and is arranged to make one revolution per inch of paper travel on the table.

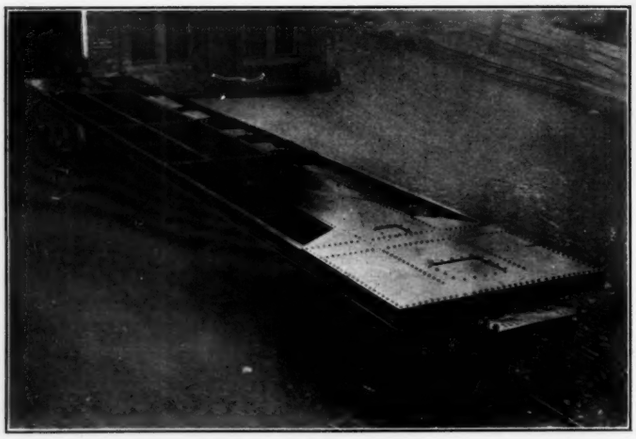
The driving mechanism for the Boyer speed recorder is

mounted on the cover of the transmission case, and is so arranged that the recorder is driven at double speed up to 30 miles per hour, and at normal speed above that. The shifting is accomplished by means of a centrifugal device of special design, so arranged that with the increasing speed, the shift takes place at about 30 miles per hour, and at decreasing speed the return shift is not made until the speed is reduced to approxi-



Arrangement of the Pull Dynamometer

mately 20 miles per hour. The gearing in connection with the speeding is placed in a small oil-filled case, on the side of which is mounted the lever connected with the sliding clutch. This lever is provided for the convenience of the operator, so that between the range of 20 and 30 miles per hour the speed recorder may be run at either double or single speed, since the



Underframe of the Baltimore & Ohio Dynamometer Car

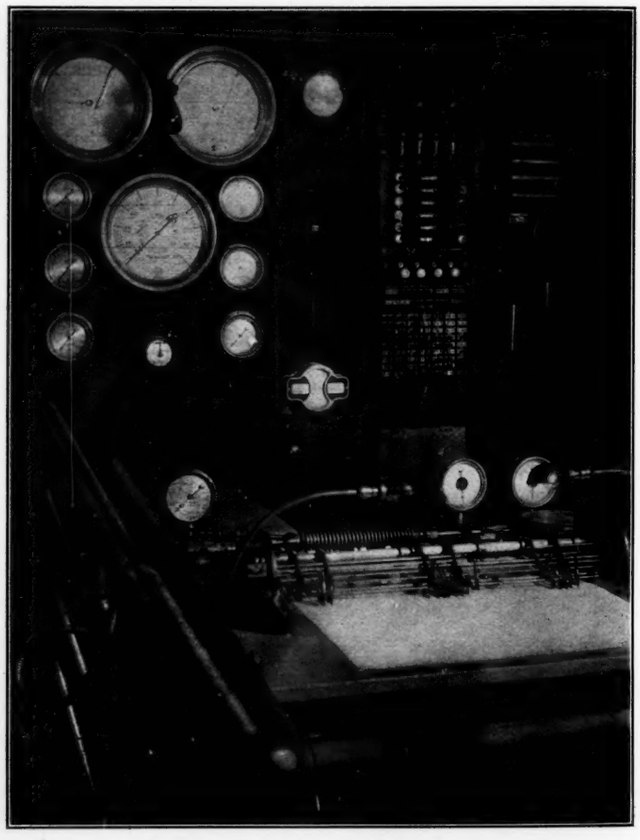
inherent drag in the governor allows it to run either open or closed between these limits.

The various records are placed on paper of 30 in. width, the speed of which is so arranged in the transmission case that on a distance base or axle drive the paper travels 1/16 in., ¼ in., or 1 in. per 100 ft. of car travel, and on a time base, or motor drive, the corresponding travel is 3¾ in., 15 in. and 60 in. per minute.

The distance record is made by multiple or self-counting offset magnets, which receive electrical impulses from the distance contacts on the transmission case commutator. The magnet automatically counts the contacts received, giving unit, minor and major divisions, which can be made either in the ratio of 1-4-40, or 1-5-50. These are for use with 25 and 20 ft. distance contacts, respectively.

The record of area under the drawbar pull curve is made by a multiple offset magnet actuated from the integrator through a suitable relay. The integrator is of the disc type, so arranged that with the rotation of the disc, controlled from the paper travel, and the position of the integrator wheel, controlled by the indicator spindle, each revolution of the integrator wheel corresponds with 5 sq. in. of area under the drawbar pull curve. This type of integrator has an advantage over the common type, in that for any given or constant value of drawbar pull, the action is entirely rolling instead of sliding.

The drawbar pull is recorded over a 9 in. range by a special



Gages and Recording Apparatus

indicator and suitable connecting levers. The indicator has a fixed piston of .5 sq. in. area, and is provided with three springs having resistances respectively of 50, 100 and 200 lb. per inch extension. The pressure system actuating the indicator is connected with a 1,000 lb. gage reading both in pounds per square inch and thousands of pounds drawbar pull, giving a visible reading of this record. The spindle of the indicator is extended, and carries the integrator disc frame and also actuates the horsepower recorder at the extreme right of the table.

A multiple cable extending to the locomotive serves to give the various records of coal fired, indicator cards, reverse lever and throttle lever position. An extra offset is provided for such other use as may prove of advantage.

The speed records are obtained by means of a multiplying motion from the Boyer speed recorder, so arranged that the normal 3 in. record is increased to 6 in. on the paper. The Boyer connection is made to the smaller of two drums, which

in turn is connected with the standard Boyer gage, giving a visible reading of speed, and also in connection with the spring providing the necessary return force to drive a secondary wiring system connected with the speed record, and if the operator chooses, with the horsepower recorder.

The curve, right and left, is indicated by means of a three-connection commutator actuating a double motion offset instrument which gives offsets in either side of the line, according to the direction of the curve. A six-second clock provides the time measurement for the chronograph, and its record is made through a suitable relay and multiple, or self-counting offset magnet. The cams are so arranged that a 1-10-50 ratio is obtained, giving six second, one minute and five minute divisions.

The distance records are repeated at this end of the table to aid in determining the reference line for any given offset, and are of service in working up the records. The location record is made by a single or non-counting offset magnet controlled by push buttons from the observers' stations.

Four standard, inside spring, Ashcroft indicators are provided to give the records of steam pressure, train line pressure, brake cylinder pressure, and to provide an extra indicator. These records are all made 5 in. behind the reference line. The horsepower record is obtained from the horsepower calculator, which mechanically multiplies the values of speed and drawbar pull and actuates a silk cord attached to the horsepower pen rod, and so arranged that the entire system is kept in tension by connecting this pen rod to a standard Boyer gage at the back of the table. The gage is re-graduated to give a direct reading of horsepower, and with the 100 lb. spring in the indicator and the Boyer recorder running at normal speed, its record reads directly as graduated, being based upon 1 in. of record per 3,000 horsepower. The various constants in connection with change of spring are noted on the face of the dial, all constants being correct for normal Boyer speed. With double Boyer speed in each case the reading will be correspondingly doubled.

The car has now been in service about a year, and is giving satisfactory results. It has been used in running tests with Mikado type locomotives and the electric locomotives in the Belt Line Tunnel at Baltimore.

The following are the principal dimensions and data:

Length over end sills	50 ft. 9 in.
Width	9 ft. 8 in.
Weight, complete	114,700 lb.
Sleeping capacity	8 observers, 2 porters
Maximum drawbar pull capacity	200,000 lb.
Maximum shock on buff	1,500,000 lb.
Maximum shock on pull	1,000,000 lb.
Diameter of pull cylinder	17.8413 in.
Diameter of buff cylinder	28 in.
Diameter of buff cylinder, pull side	20 in.
Total number of pens	26
Number of datum pens	6
Number of record pens	20

Records shown on tape: Distance traveled; steam pressure; train pipe pressure; brake cylinder pressure; extra (pressure); drawbar pull; horsepower behind tender; area of drawbar pull; coal; indicator cards; reverse lever; throttle; extra record; speed; curve of track location; time; distance; locations; integrator and extra.

THE RATE ADVANCE HEARINGS

The Interstate Commerce Commission continued its hearings at Washington April 2, 3 and 4 on the application of the eastern railroads for authority to make a general advance of 5 per cent. in freight rates. The statements presented by Samuel Rea, president of the Pennsylvania, and W. H. Williams, vice-president of the Delaware & Hudson, are reported in other columns. W. C. Wishart, statistician of the New York Central, gave elaborate statements for the last ten years to show how the carriers had had to accept smaller compensation year by year. He estimated that, in view of the gradual depreciation in the value of money, the actual compensation had become almost 40 per cent. below that received in 1896. To show that rates in 1910 were not unreasonably high, Mr. Wishart quoted from the report of the Interstate Commerce Commission, on the application of that year, to the effect that the rates in Central Traffic Association territory are largely the product of competition, and therefore are presumably reasonably low.

Improved standards have raised the cost in all departments of railroad construction. The price of rails has not materially advanced within 12 years, but the quantity of rails used in renewals has increased from 6.46 tons per mile of main track in 1903 to 13.65 tons in 1913. The number of ties used in renewals per mile of main track in 1903 was 334, while in 1913 it was 379.

J. G. Rodgers, general superintendent of the northern division of the Pennsylvania, presented a mass of details concerning the maintenance and operation of the Pennsylvania's property. In 1909, the depth of ballast in the track was from 8 to 12 in., but now the standard is 18 in. In 1910 the length of road worked by the block system was 3,604 miles, while in 1913 it was 4,616 miles. The use of treated ties has increased the cost of track, while yet the benefit of the increase will not accrue until some years in the future. Answering a question, Mr. Rodgers was doubtful whether with rock ballast the soft wood used for treated ties would be sufficiently durable. However, the soft timber had to be used because of the growing scarcity of hardwood. To another question, he said that the neat appearance of the roadbed of the Pennsylvania, as compared with some ordinary roadbeds, costs about $10 per mile of track per year. This neatness had been deemed worth while because it educated the men to be careful; but lately there has been some question whether this luxury could be afforded. In the last year the maintenance of way cost 14.05 per cent. of the receipts, considerably higher than in the preceding year; this was explained by the increase in the cost of labor and by the fact that about 1,000 miles of track became ten years old and demanded large renewals of ties. Also many new signals and new bridges in place of grade crossings had been introduced.

W. C. Maxwell, speaking for the Wabash, said that an increase of 5 per cent. would be only a part of what is needed to keep the roads in Central Traffic Association out of bankruptcy. To more thoroughly show up the real facts he proposed a joint investigation of the situation by the Interstate Commerce Commission and the commissions of the states in that territory.

W. H. Johnson, an agent of the Erie & Western Transportation Company, testified concerning the low rates on sugar and other commodities transported westward.

C. C. McCain, chairman of the Trunk Line Association, gave testimony concerning the rates by water from New York to Baltimore and other southern ports, and also by rail and lake westward. Carriers from New York to southern ports absorb the rate on freight from Watertown, N. Y., to New York City, leaving the income of the carriers from New York extremely small.

Mr. Shriver, of the Baltimore & Ohio, answered numerous questions propounded by Mr. Thorne.

Chairman Harlan of the commission announced that arguments would be heard April 27.

BRITISH SHIPBUILDING IN 1913.—Lloyds Register for 1913 shows that, exclusive of warships, 688 vessels of 1,932,153 tons gross, including 641 steamships of 1,919,578 tons and 47 sailing vessels of 12,575 tons, were launched in the United Kingdom in that year. Warships launched in both government and private yards amounted to 49 of 271,376 tons displacement, so that the total output was 737 ships of 2,203,529 tons. The production of mercantile tonnage is the largest ever attained, having advanced 193,639 tons over 1912 and 104,000 tons over 1906, which formerly held the record. Nearly all of the tonnage launched was of steel. Over 99 per cent. was composed of steam vessels and 78½ per cent. was built for registration in the United Kingdom. Taking into account the vessels lost, broken up or sold, the net increase in United Kingdom tonnage was 582,000 tons for the year, there having been an increase of 637,000 tons of steam tonnage and a decrease of 55,000 in sailing vessels.

The Possibility of Future Increases in Train Loads

Twenty-Eight Railroad Presidents Give Their Views As to the Possibilities of Increasing Train Loading in the Future

By Charles F. Speare

The rising ratio of fixed operating costs to gross earnings has been the American railroad managers' nightmare for the past ten years, and particularly, since 1908. In the decade expenses over which a railroad has only limited control and which are, in a degree, non-elastic, have expanded swifter than in any other similar period in railroad history. To meet this situation American ingenuity and efficiency have developed various counteractants, all summarized in the increased freight train load. In ten years the Mallet and mikado engine has passed from an experimental stage into general use; 90-lb. and 100-lb. rails have replaced previous 70 to 85-lb. standards and only a few wooden bridge structures are left standing on main lines. In the period from 1903 to 1912 (1913 figures not yet available) the train load of American railroads has gone from 391 tons to 509 tons, or 30 per cent., the tractive capacity of engines has increased from 22,796 pounds to 30,501 pounds, or 34 per cent., and the average capacity of freight cars has risen to 39½ tons, whereas it was 30.9 tons in 1903.

It is quite generally agreed that transportation costs are not likely to decline in the future for the tendency of wages and fuel, the two largest items in transportation expense, is all the time tending upward. Demands for better service, greater safety, heavier equipment in passenger travel, stations of larger capacity requiring a greater number of railroad servants to operate them, all add their mite to swell the growing sum of costs from which a railroad gains nothing in equity for its shareholders.

Hence the query has been put: Will the railroads of this country be as well able in the next ten years to meet arbitrary increases in the cost of doing business as they have since 1903; in other words is there still opportunity for counteracting higher costs through the agency of the larger train load? The answer to this will be found in the statements from railroad men themselves appearing later on in this article.

The inquiry from which the facts herein given were developed was addressed to the presidents and receivers of forty railroad systems in the United States. About 35 replies were obtained. In only one instance was the positive statement made that maximum tonnage capacity had been attained. A large majority of the presidents believe that there is still opportunity for a good addition to the train load on their lines. These men, however, incline to the opinion that the percentage of increase in the next five years will be considerably less than the rate of gain in the two five-year periods from 1903 to 1908 and from 1908 to the year just past.

Such conflict of ideas on the train load as exists centers in the tractive capacity of engines. Naturally those who are skeptical of a continuing increase in the load feel that the maximum of freight engine power has been reached in the larger type of Mallet and mikado engines now in service. This is true of roads where the drag tonnage predominates and where every mechanical facility has been provided to bring about the best train load results. There are, on the other hand, many systems with an unbalanced engine rating. On such lines enormous possibilities still exist for bringing up the load by discarding the light engines and replacing them with others of modern standards.

Where the subject of grades in reference to train loads was discussed it was the opinion that there are not, throughout the United States, many remaining grades that it would be profitable to reduce after receiving the benefits of heaviest power practical for these divisions. The sentiment was also very pronounced that the maximum strength of track and bridges had been reached. That there is plenty of gain to be secured by lengthening out passing tracks to accommodate the longer trains relating to larger loads, was the almost unanimous expression. The question of future car capacity receives deserved attention. To a few of the railroad managers the freight car rather than the freight locomotive is to solve the future of the revenue train load.

Extracts of the opinions on this general subject as they have come to me through correspondence or in conversation with the men quoted, I give below:

E. P. Ripley. Atchison, Topeka & Sante Fe. "Our customers demand time and at least one freight train must be run over practically every branch of the road every day, whether there is anything for it to haul or not, and in this fact you have one of the prime causes for our inability to load our freight trains to anything like a maximum when taken as a whole. The question of the amount of freight to move and the time in which we are given to move it have more influence upon the train loading than most anything else in certain parts of the country, and applies to all roads in the west at least. I should place as the second factor in train loading the tractive capacity of engines and of draw-bar apparatus. The former has, I think, about reached its economic limit unless some other motive power is devised. The latter is also, I think, about at its maximum, although both of these, of course, depend largely on the grade line." Mr. Ripley believes there should be a considerable increase in the Atchison train load over that obtained in 1913.

Daniel Willard. Baltimore & Ohio. "We expect to bring our average train load, including company freight, up to 700 tons, but I would not like to say just when we expect that to be accomplished." It will be noted from the table in this article that the Baltimore & Ohio had a 50 per cent. increase in loading between 1908 and 1913, most of which took place between 1910 and 1913.

Mark W. Potter. Carolina, Clinchfield & Ohio. "I am inclined to think we have about reached our maximum load, unless and until we can improve both the draw-bar and the air hose, or until some mechanical device can be worked out so as to insure the instantaneous setting of the brakes throughout the entire train in the event of trouble. It seems to me certain that railway equipment will be improved in the near future in all three respects, and I shall be very much surprised if, within the next two or three years, we are not hauling 200 cars where we are now hauling 100. Our bridges are all right and our side track accommodations also for increased train loads and a more extensive use of pushers would furnish the power." The 1913 revenue train load of the Clinchfield was 1,154 tons and its transportation cost by months has frequently been below 20 per cent. of gross earnings.

George W. Stevens. Chesapeake & Ohio. "The capacity to increase train load has practically been reached on the main lines of this company, and while some further increase can still be expected, due to the acquisition of a number of large capacity locomotives that will, in the future, be placed in service, and the placing of these locomotives also on the heavy tonnage branches, yet it cannot be hoped that this increase will, in the next five years, exceed 15 per cent. In my opinion, the tractive capacity of locomotives, with the present development of the Mallet engine, has reached the economical stage. There will be further developments in the matter of heavy bridge structures, heavier track and greater side-track facilities, all of which will be worked out in the five-year period referred to." Mr. Stevens sees in the legislative action limiting the number of cars per train a

dangerous factor and an unknown quantity in the train load problem of the future.

S. M. Felton. Chicago Great Western. "We have about reached the limit unless we should make further grade reductions or purchase still heavier power or there is a marked change in the direction of traffic movement. The purchase of heavy power, large capacity cars and grade reductions since the reorganization in 1909 brought about the increase in the train load to which you refer."

Darius Miller. Chicago, Burlington & Quincy. "I do not feel that we have yet reached the limit of our train load, and hope that it will substantially increase during the next five-year period. Upon certain divisions, where the character and volume of traffic permits it, we are today handling trains of much heavier tonnage than these average figures, and it is evident, therefore, that the average figures have no direct relation to the tractive capacity of engines, strength of bridges, length of sidings, etc. . . . The only apparent limit to a continued increase in the average train load, is the growth and the volume of business offered for transportation, and the financial ability of the company to improve its property and facilities in order to increase its train load. . . . I do not think that there is any limit yet apparent, which the ingenuity and ability of mechanical men cannot overcome, if the necessary money is provided and traffic in sufficient volume is found to justify the expenditure."

W. A. Gardner. Chicago & Northwestern. "There is no reason why we will not increase the Northwestern load at least 75 tons in the next five years, and, perhaps more. . . . We do not look for any particular increase in power or the capacity of cars. The greatest difficulty nowadays is to utilize the capacity of all sorts of equipment except coal carrying. It is not unlikely that some of the roads which have a very large coal tonnage will go to a 75, or even 100, ton car; it will have to be six-wheel trucks, however, instead of four." Mr. Gardner thinks that state commissions and the Interstate Commerce Commission should raise the minimum car load. As an illustration of the difficulty of getting maximum train tonnage he cites the fact that the 300 cars of flour and mill stuff loaded at Minneapolis daily for the east could be compassed in 200 cars if loaded to full capacity.

H. U. Mudge. Chicago, Rock Island & Pacific. "On the Rock Island there is still opportunity for a considerable increase in the revenue train load from that obtained in 1913. I believe that the increase between 1913 and 1918 will be at least equal to that in the last five years, but this will depend largely upon the ability of the company to finance grade revision work. The traffic on several of the important lines has now reached the volume to warrant these grade revisions. A large proportion of the Rock Island traffic is of that nature requiring expedited movement."

W. H. Truesdale. Delaware, Lackawanna & Western. "I believe there is still opportunity on the D. L. & W. for an increase in the average freight train load over that of the year just passed, or any preceding year. I do not believe, however, that the percentage of increase during the next five years will be anything like as great as for the five-year period ending with December 31 last. It is my view that the average tractive capacity of all freight engines on our road will increase somewhat from year to year during the next five, or possibly ten years. This will be due to the older and lighter engines of less tractive ability being gradually destroyed and the new ones will probably all be up to the most recent type of high tractive capacity of the freight engines purchased in the last two or three years. It is furthermore my belief that these later engines are practically of the highest capacity that it is likely the railroads will be able to use to advantage."

F. D. Underwood. Erie. "It is not the purpose of the Erie Railroad to greatly increase the power of locomotives. It aims to make further progress in the loading of cars, and lessen empty car haulage. It has in view further grade reductions in Ohio and Pennsylvania, which, when completed, will develop heavier train tonnage. When the final grade reductions are had the Erie freight train load should average 800 tons of cargo. Mechanically there is yet room for more traction and stronger bridges."

C. H. Markham. Illinois Central. "I think it is a fact that the average tractive force of engines in service is capable of permitting a very considerable increase in train load for some years to come. We all have in service a comparatively large number of light capacity engines, and on the Illinois Central there are a large number of such engines which will be retired whenever the cost of repairs reaches a certain figure." For the first half of the present fiscal year the Illinois Central train load has increased 5 per cent. over the same period of the last fiscal year.

L. F. Loree. Kansas City Southern. "In my judgment there is reason to expect a gradual improvement in the revenue train load on the lines of this company in common with railroads generally. Under existing conditions it may amount, in the next few years, to some such figure as 20 or 25 per cent.; in more favorable circumstances it might be greater. . . . It is from the revision of grades that most is to be expected. The effect of a change in grade, for example, from 1 per cent. to ½ of 1 per cent., is practically to double the potential freight train load."

E. Pennington. Minneapolis, St. Paul & Sault Sainte Marie. "The large increase in 1908-1913 was due to an elimination of grades, acquisition of locomotives of greater tractive power and better terminal and line of road facilities. Further grade reductions on the line that will result in a larger train load have been deferred for financial reasons. Our standard freight engine with tractive effort of from 45,000 to 51,000 pounds is in my opinion the limit of tractive capacity so far as our line is concerned. This means a train load varying from 3,000 to 3,700 tons* on the different divisions."

C. E. Schaff. Missouri, Kansas & Texas. "The increase in revenue train load during the next five years will depend largely upon our ability to replace the light engines with heavier power. Our plan is to replace all the main and heavy traffic lines of the Missouri, Kansas & Texas with heavy rail and heavier engines, and I think we ought to secure a 15 or 20 per cent. increase in the revenue train load before 1918. Should there be a substantial increase in the northbound business our train load might increase 30 or 40 per cent."

B. F. Bush. Denver & Rio Grande and Missouri Pacific. "It is reasonable to assume that the revenue train load during the ensuing five years will equal the established ratio of increase and probably exceed it. Further improvement necessarily depends on the relative tonnage there may be to handle, increasing the length of passing tracks, purchase of other locomotives of a capacity that would further increase the average tractive power per engine, the installation of heavier bridges as needed, some further reduction of grades, and the double tracking of lines as the increase in the traffic warrants."

A. H. Smith. New York Central Lines. "It is possible to make further increase in the revenue train load on either the New York Central or the Lake Shore with the present standards of roadway and structure. The feasible lines of development along which such improvement may transpire are, *a*, efficiency of personnel; and *b*, efficiency of equipment."

L. E. Johnson. Norfolk & Western. "It is not only our belief but our positive knowledge that, on the Norfolk & Western, there is still opportunity for a considerable increase in the revenue train load over that obtained in 1913. We anticipate that there will be a decided increase between 1913 and 1918, but possibly not to the same extent as in the last five-year period. The limit in the tractive capacity of engines on the Norfolk & Western has practically been reached until such time as we can see our way clear to use a heavier than a 100-lb. rail." Mr. Johnson, like Mr. Stevens of the Chesapeake & Ohio,

*Gross weight behind the drawbar presumably [Ed.].

thought legislation by trainmen might be a factor in limiting the future size of the train load.

J. M. Hannaford. Northern Pacific. "It is my belief that on the Northern Pacific there remains but limited opportunity for any considerable increase in the revenue train load over that obtained in 1913. With the growth of traffic density and some improvements in grades and motive power a small increase may be made, but I anticipate it will be much less than the average for the ten years from 1903 to 1913."

Howard Elliott. New York, New Haven & Hartford. "There is room for considerable increase in the New Haven train load both through the introduction of heavier power and the lengthening out of many passing tracks. In the few months I have been with the system the load, under Mr. Hustis's direction, has been increased about 50 tons per train."

J. M. Schoonmaker. Pittsburgh & Lake Erie. "It is unlikely we can materially increase our revenue train load in the future as we are approximately at the 100 per cent. limit of power, bridges and track capacity, a point we have been reaching up to since we started this good work in 1906."

F. H. Britton. St. Louis Southwestern. "It is my belief that the St. Louis Southwestern has still opportunity for a considerable increase in revenue train load. The ratio of increase will not be as great as in the past because we are gradually reaching the maximum tractive capacity of locomotives as well as the carrying capacity of freight cars. The class of freight handled has much to do with train load. Our merchandise shipments have increased considerably in the last few years. The handling of merchandise results in a reduction in the load per car, and competition and quick service usually result in a reduction in train loading."

W. J. Harahan. Seaboard Air Line. "There is room for considerable improvement in the train load on this line, a large part of which will come, however, from the equalization of business, decreasing the percentage of empty cars handled. We have not reached the maximum tractive capacity of engines and there is opportunity for gain in the matter of bridge strength and side track accommodations. The development of the Mallet engine and the mikado engine made a very great increase in tractive power which was not foreseen prior to the time that it occurred. So I believe, when the necessity for increased power arises, it will be taken care of in some feasible way."

Julius Kruttschnitt. Southern Pacific. "There is not much opportunity left on the Southern Pacific for increasing the train load by reducing grades. During Mr. Harriman's administration it was the policy to reduce grades and to use the engines of smaller capacity. Now larger capacity engines are required to make gains in train tonnage figures. In the maximum units of engines now in use I believe the limit of tractive capacity has about been reached, for rails, bridges and the axle-bearing load are already under a very great strain. On the Southern Pacific an important factor in train tonnage is the increase in speed required by shippers. We are gradually trying to work up to a larger load even with the more difficult time schedule. Again the necessity for running mixed trains on branch lines cuts tonnage as, frequently, the train load on these branches will be only from 80 to 90 tons, against 700 tons on the main line. Car loading is still an undeveloped science, but it has its limitations owing to the long usage of certain units of car loads by shippers. Eventually the Southern Pacific ought to have a 450-ton train load."

Fairfax Harrison. Southern Railway. "There is a large opportunity for increased efficiency in respect to train tonnage. We have by no means reached our limit, even without the vast expenditure of capital necessary for revision of grade."

E. T. Kearney. Texas & Pacific. "We have not reached our limit according to conditions for heavier tractive power. The present structures will accommodate the heavier engines. I anticipate that the tonnage load in the next five years will increase between 10 and 15 per cent. In the last six months gross tonnage per train has increased 20 per cent."

W. L. Ross. Toledo, St. Louis & Western. "By the expenditure of some money in eliminating a few curves and grades there could be made a showing during the next five years equal to the past. Lines situated as the Toledo, St. Louis & Western, handling miscellaneous traffic and serving a highly competitive territory, requiring a fixed amount of expedited freight service, are limited in train loading to the existing daily conditions."

Raymond DuPuy. Virginian Railway. "The original program for the Virginia with its 0.2 per cent. grade line on two of its operating divisions, was to handle 80 loaded 50-ton cars in a train. But we developed a mikado engine a little heavier than our first mikados, and equipped them with superheaters and now handle 100 cars per train as easily as 80 formerly. Our passing tracks were built for the 80-car trains. By lengthening them out to fit the longer trains hauled by the mikados we can increase tonnage over the low grade divisions by 25 per cent." Speaking generally Mr. DuPuy believes that the Mallet engine will be used more freely for road service and that this will raise the average train load. He finds much to criticize in the center sill construction of cars, which he believes is not strong enough. This opinion he justifies by a bad order record of less than 0.6 per cent. for Virginian cars of special type, making a mileage of 12,000 miles per year and handling the heaviest train load in the country, against the normal average of "bad orders" of from 3 to 5 per cent.

Henry Miller. Wabash. "There is still opportunity to increase the revenue train load on the Wabash, and as the record shows a consistent increase the past ten years, it is reasonable to suppose that the improvement will continue."

With such a strong jury so unanimously of the opinion that the increase in train loading will continue it is conservative to place the probable average for the country by 1918 at from 575 to 600 tons per train.

What has been accomplished in the past decade is indicated in the following table, which shows the record of the different roads, including the percentage of gain from 1903 to 1908 and from 1908 to 1913:

	1913. Tons.	1912. Tons.	1911. Tons.	1910. Tons.	1908. Tons.	1903. Tons.	% Inc. 1913 over 1908.	% Inc. 1908 over 1903.
Atchison	310	317	310	295	287	280	8.01	2.50
Baltimore & Ohio	620	555	441	442	414	421	50.0	*1.66
Bessemer & Lake Erie	...	1,038	989	1,007	931	943	....	*1.28
Canadian Pacific	381	372	336	340	291	252	31.0	15.6
Chesapeake & Ohio	843	756	656	701	621	473	31.8	26.1
Chicago & Alton	491	434	414	396	441	361	11.3	22.8
Chicago Gt. Western	450	400	369	302	276	277	63.1	....
Chi. Burl. & Quincy	484	437	406	381	384	271	26.1	41.6
Chi. Mil. & St. Paul	357	308	290	281	274	240	30.7	14.1
Chi. & North Western	348	299	277	260	262	231	33.1	13.4
Clinchfield	1,154	1.059	861	...	...	...	*34.1	....
Delaware & Hudson	...	502	467	432	398	393	....	....
Del. Lack. & West	660	602	584	567	484	443	32.5	9.25
Denver & Rio Grande	305	272	265	265	246	205	24.0	20.5
Duluth & Iron Range	...	...	...	...	...	...	....	....
Erie	597	527	521	495	465	406	28.4	14.6
Great Northern	635	601	524	518	510	447	24.5	14.2
Illinois Central	407	356	358	364	352	288	15.7	22.5
Kan. City Southern	520	413	380	361	318	255	63.0	24.7
Lake Shore	...	693	634	594	586	615	....	*4.71
Lehigh Valley	599	566	544	542	530	486	13.0	9.06
Lou. & Nashville	295	285	276	278	234	231	26.0	1.30
Mo. Kan. & Texas	243	241	225	216	219	211	11.0	3.80
Missouri Pacific	373	333	291	294	285	302	30.8	*5.66
New York Central	...	465	430	417	384	368	....	4.35
New Haven	291	292	290	293	243	218	19.8	11.5
N. Y. Ont. & West	308	292	296	270	265	287	16.2	*7.66
Norfolk & Western	764	692	643	635	571	486	33.9	17.5
Northern Pacific	542	511	461	429	431	326	25.9	32.2
Pennsylvania	719	686	671	649	602	527	19.5	14.2
Pitts. Cin. C. & St. L.	...	462	418	385	338	310	....	9.0
Pitts. & Lake Erie	1,241	1,215	1,159	1,207	1,058	951	17.2	11.2
Rock Island	297	278	270	259	255	189	16.5	34.7
Seaboard Air Line	246	257	220	223	186	176	32.2	5.68
St. Lou. & San Fran.	281	255	221	223	212	195	32.5	8.70
St. L. Southwestern	300	292	268	283	262	205	14.6	27.3
Southern Pacific	389	382	397	396	334	257	16.4	30.0
Southern Railway	260	250	241	237	195	188	33.3	3.68
Texas Pacific	230	218	219	222	221	207	10.0	6.75
Tol. St. L. & West	492	412	451	481	465	296	5.90	57.1
Union Pacific	437	425	441	452	430	345	1.62	24.6
Virginian	1,392	1,132	1.049	755	...	...	84.2	....
Wabash	395	358	344	353	361	302	9.50	19.6
Wheel. & Lake Erie	789	740	680	640	612	400	28.9	53.0
Wisconsin Central	422	396	340	354	291	304	45.1	*4.31

*Decrease.

The Construction of the Northwestern Pacific

Building a 103-Mile Line Requiring Numerous Bridges and Tunnels Through an Almost Inaccessible Country

The Northwestern Pacific Railroad Company was organized January 8, 1907, by the Southern Pacific and the Atchison, Topeka & Santa Fe for the purpose of taking over and operating the following railroads in northwestern California which were already owned by them: The California Northwestern, extending from Ukiah to Sherwood; the San Francisco & North Pacific, from Tiburon to Ukiah (under lease to the California Northwestern); the Eureka & Klamath River, from Samoa to Trinidad; the Oregon & Eureka, lessee of the Eureka & Klamath River; the Fort Bragg & Southeastern, from Keene's

Portion of New Grade Along Eel River, Showing one of the Short Tunnels and Part of a New Wagon Road Built to Reach the Line

Summit to Wendling; the Albion & Southeastern, from Albion to Keene's Summit; the North Shore, from Sausalito to Cazadero; and the San Francisco and Northwestern, from Arcata to Shively.

These lines are all located in the coast counties of California, north of San Francisco Bay, and comprise practically all the lines serving this territory. When taken over by the Northwestern Pacific they totaled about 500 miles of main lines and branches and this mileage has been added to by the construction of sundry connections and additional branches. The California Northwestern operated from Tiburon (6½ miles by ferry from San Francisco) to Willits, in Mendocino County, a distance of 138 miles, and the San Francisco Northwestern from Eureka to Shively, in Humboldt county, a distance of 39 miles, leaves a gap of about 103 miles between Willits and Shively which it would be necessary to fill before rail traffic could be established between San Francisco and Eureka. Immediately after the organization of this company it was announced that work would be commenced at once upon the construction of a road to fill this gap and the engineers were instructed to select from the many surveys made by the parent companies the most feasible route.

Upon the completion of exhaustive studies it was decided to adopt as maximums 0.7 per cent. grades and 10 deg. curves, it being understood, however, that the curvature would be limited to 8 deg. except where considerable saving in distance or money could be effected by the use of 9 and 10 deg. curves. It was also decided that the road should represent the highest type of con-

Sixth Crossing of Outlet Creek

struction in every way, that wherever possible all structures would be built of steel and concrete and that the roadbed and tunnels should conform to the standards used by the western trunk lines.

ROUTE

Leaving the San Francisco-Sherwood line at Willits the route selected follows Outlet creek for 27 miles to its confluence with the South Eel river, crossing this creek twelve times in this distance. Leaving Outlet creek the road follows the west bank of Eel river about 28 miles until it reaches Island Mountain where it crosses to the east bank and plunges into a 4,300-ft. tunnel, after which it follows the east bank for 11 miles until it reaches Cain Rock where it again crosses to the west bank. At Dyerville, 31 miles north of Cain Rock, it again crosses to the east bank of the river which it follows until it connects with the constructed line at Shively, 38.5 miles south of Eureka.

The canyon of Eel river is very much like the canyons of other rivers traversing the mountains of the west and the stream itself is very much like the larger mountain torrents of this section of the country. At points the canyon is quite narrow and at other points is comparatively wide. The sides are very abrupt and steep in most places, often reaching a height of several hundred feet. The sides of the canyon are cut at many places

by tributary streams and at these points there are usually small embayments into which the walls of the canyon slope.

The elevation of Willits above sea level is 1,364 ft. and of Shively 148 ft. All grades are against southbound traffic with the exception of several short stretches of grade, 0.4 per cent. and less, which were provided to obtain proper clearances at bridges and for drainage in one of the tunnels. As is to be expected upon a line built through a country of this character there are very few long tangents. Many light curves have been provided, however, and the line viewed as a whole shows much less sharp curvature than might be supposed.

CONTRACTS

The first contract which was let on October 1, 1907, to the Warren Improvement Company, San Francisco, was for the construction of the first three miles of road north of Willits, but all work was abandoned when the financial panic of 1907 occurred and this section of line was not completed until 1910. Contracts for the next 10 miles and for the first 13 miles south of Shively were let in December, 1909, to Willett and Burr, San Francisco. The remaining portion of the gap is being constructed by The Utah Construction Company, Ogden, Utah.

It is impossible to tell at the present time when the grading, tunneling and masonry work provided for in these contracts will be completed. Estimates show that the contractor's work should be completed, at the present rate of progress, about the middle of 1914. If these estimates are correct the road should be opened for operation between San Francisco and Eureka before the end of the year.

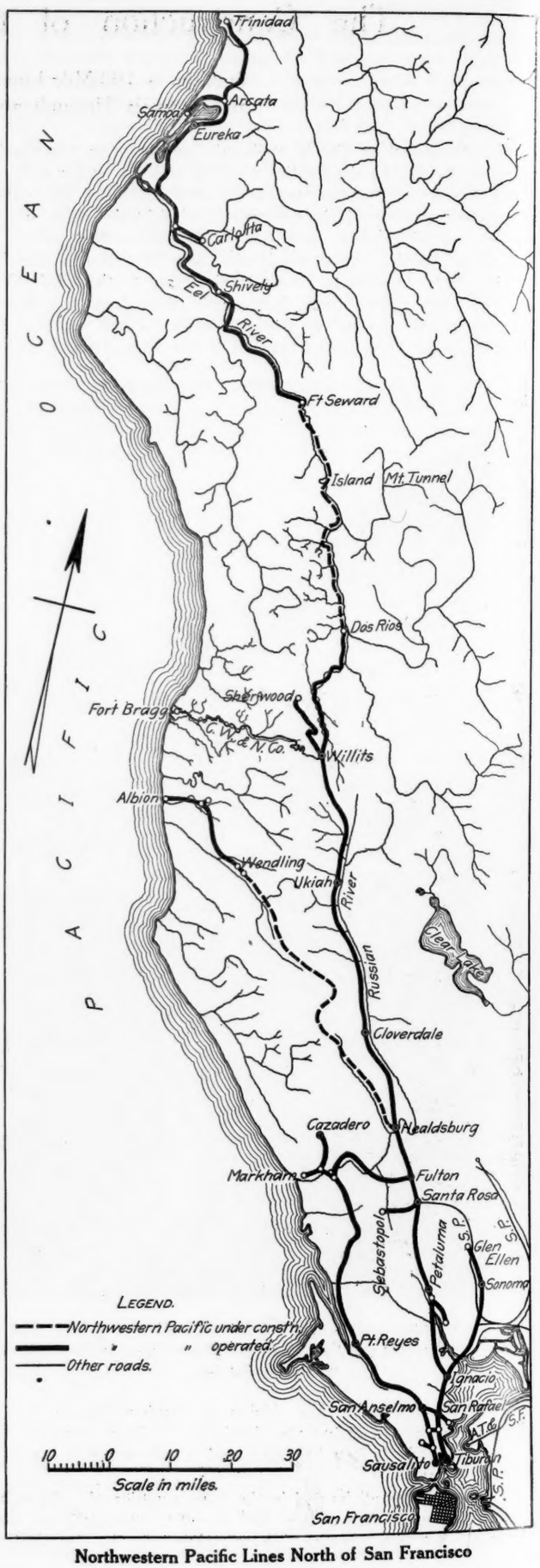
GRADING

All grading is being performed under contract. Much of it has been sublet by the principal contractors to subcontractors and stationmen who are using many different methods. At first it was impossible to put steam shovels or other large machines upon the work as it would have been necessary to haul them many miles over the steep mountain roads. The introduction of motor trucks for hauling over these roads has now made it possible to transport to the work almost any object that can be taken apart and there are now at work 3 steam shovels, 6 locomotives and about 60 cars, that have been hauled in this way. In addition to the three shovels hauled onto the work in motor trucks the contractor has three other steam shovels which were transported to Eureka by steamer and thence to point of operation by rail. The railroad also has three 70-ton shovels at work clearing cut slides, widening cuts, etc.

Much of the work has been done by hand and with the aid of wheelbarrows and small cars. Teams have also been used where they could be employed to advantage. Cuts and fills vary from a few yards to many thousand yards in volume and it is, of course, necessary to adopt different methods to meet these differences in volume as well as the various classes of material encountered which runs from the softest earth to the hardest rock. Owing to the fact that the line follows the river most of the cuts are "daylighted," but there are some through cuts of large proportion.

It is impossible to tell at the present time how many yards of material will have to be moved in order to complete the job, but some idea of its magnitude can be gained from the knowledge that over 6,000,000 yds. have already been moved. The roadbed in cuts is 20 ft. wide and on fills 18 ft. Slopes of fills are 1½:1 and vary in cuts according to the class of material. Owing to the steep transverse slopes of the mountains many retaining walls have been required to hold the fills. Liberal shrinkage allowances have been made in all fills.

One of the photographs shows a stretch of road under construction along the Eel river and one of the short tunnels is plainly visible. The upper grade shown in the picture is the wagon road built through the canyon by the railroad before construction was commenced. All material and supplies, as well as the heavy machinery before mentioned, had to be hauled over this road. During the early period of construction it was



Northwestern Pacific Lines North of San Francisco

traversed by 6 and 8-horse teams, but motor trucks have since superseded most of them. It is not unusual to pass from 6 to 10 trucks during a day's drive over this road and as most of them carry a load of 6 tons this represents from 30 to 60 tons of freight.

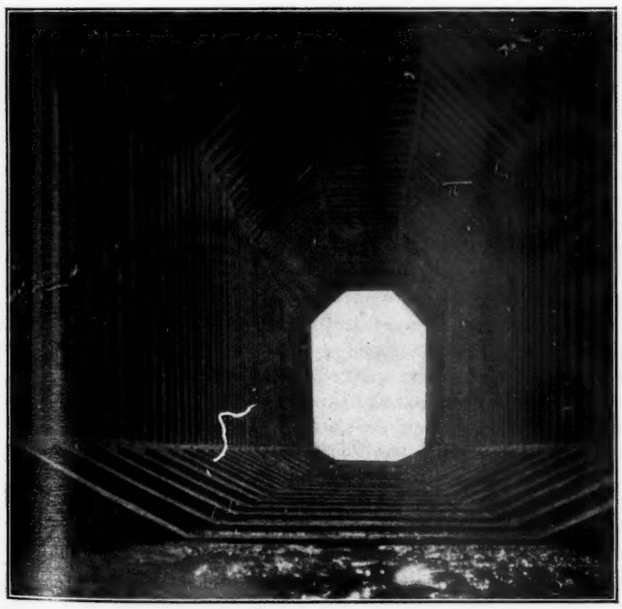
TUNNELS

As nearly as can be determined at the present time the filling of this gap of 103 miles will necessitate the construction of 30 tunnels with an aggregate length of 15,600 ft. Some of the tunnels are quite short while the longest is 4,335 ft. in length. Following is a list of the tunnels grouped according to lengths:

100 ft.	to	200 ft.	= 5
200 ft.	to	300 ft.	= 7
300 ft.	to	400 ft.	= 8
400 ft.	to	500 ft.	= 1
500 ft.	to	600 ft.	= 3
600 ft.	to	700 ft.	= 3
700 ft.	to	800 ft.	= 0
800 ft.	to	900 ft.	= 1
		1,122 ft.	= 1
		4,335 ft.	= 1

On one single mile of road there are three tunnels and the longest stretch of road upon which there is no tunnel is 10.5 miles. All tunnels are of the same section; 17 ft. wide in the clear, with an extreme height of 21 ft., 9 in. from top of rail to bottom of roof timber. The standard tunnel section and timbering plan of both the tunnel section and portals are shown in one of the drawings. Much trouble has been experienced in driving and holding the tunnels on account of the unstable nature of the ground through which they are built. It has been found necessary to shorten the length of some of them for this reason and it was necessary to replace one tunnel with an open cut.

Nearly all the tunnels are either under construction or completed. Sixteen are now being used for the passage of trains; nine north of Willits and seven south of Shively. The Island Mountain tunnel is entirely completed, but as it is situated midway between the ends of track no ties or rail have been laid. This tunnel is the longest on the line and was necessitated by a sharp bend in Eel river. The south portal opens directly onto the river and about 95 ft. above it and a 600 ft. bridge will be required to carry the railroad across the river at this place.



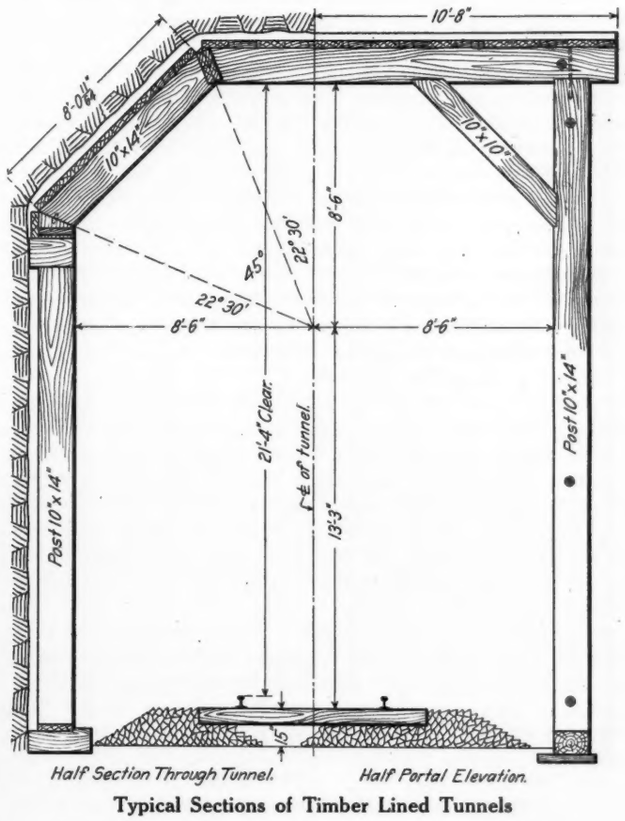
Timbering in Island Mountain Tunnel

Work was started on this tunnel during May, 1911, and the tunnel was completed during July, 1913. Timber for lining this tunnel was secured from forests in the vicinity and cut in a sawmill specially erected for the purpose. One of the photographs taken 200 ft. within the north portal shows the timbering used, and also the inverts required at some points to prevent the moving in of the bottom of the posts. These inverts are made of segments of 8 in. by 17 in. Oregon pine.

All tunnels were constructed under contract. No machinery was used in any of them and the material varied from soft earth to hard rock. Some of the tunnels are lined with pine and some with redwood, depending upon which could be most easily secured in the vicinity. The timber for many of the tunnels was cut by mills specially erected in the vicinity.

BRIDGES

All large waterways on the new line are crossed on steel bridges supported by concrete piers and abutments, while the smaller waterways are taken care of by concrete arches and ballasted deck openings. There are many culverts of 24 and 30 in. concrete pipe, built in place. All steel structures are built in accordance with Harriman Line Common Standard Specification 1006, which provides for a moving load consisting of a train of two consolidation locomotives followed by a uniform load of 5,000 lb. per lineal foot; the locomotives are supposed to carry 25,000 lb. on the pony truck axle, 55,000 on each driver axle, and 35,000 on each tender axle.



Typical Sections of Timber Lined Tunnels

The bridges were all built in the shops of the American Bridge Company and erected by the railroad company, except those at Dyerville and Larabee crossings which were erected by local contractors. Excavation for, and erection of piers and abutments is provided for in the general contracts for grading and tunneling. Contractors are paid for dry excavation upon the same basis as other excavation and are paid force account for excavation below water level.

There is a difference of almost 50 ft. between the low and high water levels of Eel river and it is not unusual for the river to rise 20 to 35 ft. in 24 hours. Special care had to be exercised in selecting bridge sites and some of the bridges

are anchored to the bedrock in order to guard against movement in times of flood. It is also necessary to make provision for floating trees as redwoods over 100 ft. long and 10 ft. in diameter are often carried down the rivers and sufficient clearance must be provided to enable these trees with their outstanding limbs and roots to pass without injuring the structure. All piers carry steel cutwaters on their upstream edges.

The three 70-ft. through girders at the sixth crossing of Outlet creek are shown in accompanying cuts. This structure is typical of all bridges of its class erected on this work. The photograph was taken at extreme low water and conveys an excellent idea of the character of the country through which this line is being built.

TRANSPORTATION

The greatest single difficulty that had to be overcome by the builders of the road was the lack of transportation facilities to the different sections of the work. While it is true that the extreme southern end and the extreme northern end could be reached by the railroads then in operation this aided but little in a solution of the problem. If time would have permitted, the construction of the road from the Willits end only would have simplified the problem, but if such a course had been pursued the interest charges, etc., would have been more than the amount necessary to provide adequate transportation facilities. While the road operating from Eureka south to Shively was of considerable assistance in opening the extreme northern end of the new line it must be remembered that all men, outfit, and supplies put on the work in this manner had to be first transported from San Francisco to Eureka in steamers, a slow, costly and sometimes a dangerous procedure.

Passenger steamers ply between these ports on a four-day schedule, and while these steamers have been used for the transporting of men and small lots of supplies, their construction does not permit of their being used for carrying the larger pieces of machinery and heavy supplies required on a work of this magnitude. There is a large fleet of lumber schooners plying between Eureka and San Francisco; the vessels sailing to San Francisco heavily laden with lumber and returning to Eureka light. These vessels were used for carrying all the heavier material and supplies, and while the owners based their rates on those charged by the passenger steamers thus obviating any financial saving, they provided for the transportation of practically all the machinery and supplies used on the job.

An interesting example of how the larger pieces of machinery were transported is illustrated by the manner in which steam shovels and locomotives were handled on and off the schooners. Equipment of this kind that could be run on its own wheels was run directly from the tracks of the railroad upon which it arrived in San Francisco to a car barge which was then towed by a tug under the shear legs at the Union Iron Works on the shore of San Francisco Bay. The schooner upon which it was to be transported was then run alongside and the machine hoisted upon its deck. It was not unusual to swing a piece of equipment weighing 75 tons free of the barge and land it on the deck of the steamer in less than half an hour. Steam shovels and locomotives were loaded on rails laid across the decks of the vessels so as to facilitate their unloading at Eureka, where there were no shear legs of sufficient strength to handle them. It was customary to build up timber cribs on the wharfs at this point and run the machines onto rails laid thereon and connecting with the tracks of the railroad. The cost of thus transporting a steam shovel from San Francisco to Eureka, including marine insurance, is over $2,000. Only one accident occurred while transporting equipment and this was when a 40-ton steam shovel fell into San Francisco Bay while being unloaded from a barge into a car slip. This shovel was recovered without difficulty and after being overhauled was put back into service.

An illustration of how saving can be effected on a job of this kind by taking advantage of every opportunity is afforded by the methods used by the officials in charge of this work to reduce transportation costs. A schooner was launched upon the Atlantic coast for use in the lumber trade on the Pacific and under ordinary circumstances would have traveled around the Horn to its destination in ballast. Taking advantage of this opportunity the railroad company chartered the schooner and loaded it with rails for Eureka. Not only was the cost of rail transportation saved on this shipment, but handling charges at San Francisco were saved as well. A system for safeguarding transportation issued to contractors' employees was also used. (See *Railway Age Gazette* of October 20, 1911.)

The transportation of material and supplies to Willits and Shively being thus provided for, the problem of obtaining transportation to the many points along the line where it was thought desirable to start work had yet to be solved. There were few wagon roads traversing the country through which the line runs and these few did not run even approximately near it. It was at first proposed to build a road along the line of the survey but this was not found practicable as the road would have been rendered useless in many places as soon as grading work was commenced. It was decided therefore to use the county roads wherever possible and to build branch roads to all tunnel points and bridge sites and later to connect these short stretches to form a continuous road through the river canyon. This has been done and all points on the construction work have been available to team transportation at all times. Even though these roads have been carefully planned and built at great expense they can be used only during the summer months, as in common with all other roads in this vicinity they are a sea of mud during the heavy winter rains and the lightest wagon would sink into them above the axles. Numerous trails have been built to facilitate foot and saddle transportation and these trails, of course, materially shorten the distances between camps.

It has been found necessary in all cases for contractors to haul sufficient material and supplies during the summer months to last them during the winter. Most of the supplies are easily storable, but the fuel situation has been found quite a problem. Oil is used for steam shovel and locomotive fuel during the summer, but it is impossible to store fuel oil in this country for winter use so the contractors have decided to use either coal or wood during that period. The subcontractors who will use coal haul it onto the work during the summer for use during the winter and so distributing it that it will be easily available for use. The subcontractors who will use wood have men cutting it in the vicinity of the work. The use of wood or coal is optional with the subcontractors.

During the summers of 1910 and 1911 teams were used for all hauling but were found a slow and very unsatisfactory, as well as an expensive method of transportation. During 1912 motor trucks were placed upon the roads with the teams but were not found entirely satisfactory owing to the occurrence of many accidents and break-downs. Many different makes of trucks were experimented with, but it was not until late in the year that any marked improvement was obtained. Although it was too late in the season to experiment further the contractors felt warranted in investing large sums in motor equipment which they placed upon the roads as soon as they were open to traffic in the spring of 1913. That they are an unqualified success is proved by the fact that they have entirely replaced the wagons formerly used.

The railroad company constructed a telephone line in advance of construction and all engineers' and contractors' camps have been connected with it at all times. In addition to the facility with which the various camps may communicate with each other they have been put in direct communication with the entire outside world through connection of this line with the exchange of the Pacific Telephone & Telegraph Company (Bell system) and the Western Union Telegraph Company at Willits. The chief engineer of the railroad and the manager of the construction company frequently confer with their assistants

on the work directly from their offices in San Francisco. The division engineer is similarly in communication with the assistant engineers on his division at all times and the superintendent for the construction company may communicate with his assistants. The cost of the construction and upkeep of this line has been small and its value has been great. There are now 44 telephones on the line and as it is proposed to add quite a few more, which would carry it beyond its capacity, the line has been divided in the center and a simple exchange with an operator in attendance has been added to increase its efficiency.

TRACK

The first sections of track south of Shively and north of Willits are laid with 75 lb. A. S. C. E. section rail, but the balance of the line is laid with 75 lb. Harriman Lines C. S. section. All rails are connected with 27 in. continuous joints and 7/8 in. by 4⅛ in. bolts with square nuts. Harriman Lines flat tie plates and 5½ in. by 9/16 in. spikes are used throughout. Untreated redwood ties 6 in. by 8 in. by 8 ft. long are used in the track, most of which are cut in the forests in the vicinity. Verona nut locks are used under all nuts.

The track is laid in short sections by the railroad company's forces as the grading is completed. The rail is all curved in the material yard with a power rail bender and forwarded to the front as needed. As soon as the rail is laid a light running surface is put under it which is later increased to the full allowance of ballast. Gravel taken from the Eel river is used for ballast and an ingenious method is now being employed for obtaining it. Two parallel tracks have been laid in the river bed and each morning the inside track is filled with empty cars. A self-propelling locomotive crane, equipped with a clam shell bucket, and running on the outside track then starts at the furthest car and loads the entire string before evening when a work engine calls for it. The ballast is distributed along the track at night. Two men only are required in the ballast pit during the day, the engineer and helper on the crane. Crews are not held waiting for gravel and the crane is not kept waiting for cars; maximum efficiency is obtained from the cars as they are in service at all times, either being loaded or unloaded.

PERSONNEL

The engineering department of the Northwestern Pacific was organized almost immediately following the formation of the company by the appointment of W. C. Edes to the position of chief engineer. J. W. Williams was appointed assistant chief engineer, and William S. Wollner was placed in charge of the chief engineer's office and staff. Later F. T. Oakley was added to the staff as bridge engineer. All of these officials are still actively connected with the construction of the road.

For construction purposes the road between Willits and Shively was divided into two sections; the Cain Rock crossing of Eel river forming the division point. R. H. T. Marrenner was placed in charge of the work south of Shively as division engineer, and the work north of Willits is under the direction of the assistant chief engineer. Owing to the inaccessibility of the work, and the difficulty experienced in traveling from one part of it to another, the work is divided into small residencies in charge of assistant engineers who are made directly responsible for the work entrusted to their charge. Most of these residencies are from four to seven miles long, the distance varying with the character of the country. Each assistant engineer is supposed to pass over his residency at least once each day, and is supplied with a party consisting of an instrument man, a head chainman, a rear chainman, a stakeman, a timekeeper, a cook, and as many masonry inspectors, tunnel inspectors, and axemen as are required for the proper prosecution of the work. Unusual care is exercised in employing men for service in the engineering parties and it is the policy of the officials of the department to fill positions whenever possible by promotion of men already in the service. As a result of this policy nearly all of the 16 positions of assistant engineer are filled by men who have risen from positions as chainmen or inspectors and this fact has tended to attract to the road a more desirable class of men than is usually found upon work of this character.

Owing to the roughness of the country the engineering parties are often called upon to do difficult and dangerous work. Every effort is made to safeguard employees while at work; ropes are provided for all steep slope work, and medical boxes, equipped with complete surgical outfits, are kept in all camps. Arrangement has been made by the company whereby the contractor's surgeons render necessary medical and surgical aid to members of the engineering corps.

WITH LOWER COSTS JAPANESE ROADS GET HIGHER RATES

The Bureau of Railway News and Statistics has issued the following:

"Although their railways pay the highest wages in the world and must face correspondingly higher prices for materials than are borne by any other transportation system, the American shippers today are paying a smaller bill to have freight transported than the shipper in Japan, whose railway, operated by the government, bears nearly, if not quite, the smallest burden in wages or costs of materials in the world. This striking showing of comparative economy is based upon the latest report of the Imperial government railways of Japan. The railroad system paying the highest labor costs of operation in the world, in other words, is selling its commodity, transportation, at a smaller price than is the most cheaply operated system on the globe.

"How little the question of cost burdens the Japanese railways may be learned from the fact that in the fiscal year ended March 31, 1912, it cost only $46 out of every $100 taken in to operate the system. In the corresponding fiscal year American railways paid in operating expenses a few cents under $70 for every $100 earned in gross. The difference in wages alone is almost enough to explain the discrepancy, for whereas American railways yearly pay out in wages more than $44 for every $100 earned, Japan's railways pay only $23, and whereas almost 64 per cent. of all operating expenses on American roads represents wages, less than 51 per cent. represents wages in Japan.

"In the face of this huge advantage the average rate per ton mile charged shippers on Japanese railroads is 0.83 cent against 0.74 cent on our own railroads. Yet the Japanese rate, unlike our own, does not cover terminal service. For this service a charge of 11.3 cents per ton is made, which, added to the road charge gives a total rate of 0.97 cent per ton mile against our own 0.74 cent.

"Although Japan affords a passenger rate of .69 cent per mile against our own 1.98 cent, the difference is almost wiped out by comparison of the traffic, for 95 per cent. of travelers on Japanese railroads are third class; only 4.7 per cent. use second class accommodations and three-tenths of one per cent. use first-class. Whereas this small number of first-class passengers pays 1.60 cents per mile, almost as much as our own, the third-class, in accommodations which would not be tolerated in this country, pays only 0.65 cent, which accounts for the low general average.

"Why the Japanese wage bill is so low may be judged from the fact that the highest paid officials, vice-president and engineer-in-chief, receive $200 a month. The average for officials of the higher grade is $166 per month and for officials of the lower grade $68 per month. Clerks receive an average monthly salary of $21, assistant engineers $26, general employees $9.70 and laborers in regular employ only $7.47. For all employees the average is only $112.50 per year against almost $750 yearly on American roads.

"Another reason why Japanese railroads have kept expenses so low is that immense amounts which on our own railroads must be met by operating expenses, there are charged to capital. The effect is seen in the capitalization figures, for whereas the cost per mile in 1908, just after nationalization, was only $47,759, by 1912 it had risen to $88,104, almost doubling the figure prevailing when the state took over the roads. Japan's railways today are capitalized at some $25,000 more per mile than those of the United States, frequently accused of over-capitalization."

The Railways' Attitude on Private Car Lines

Arthur Hale Asks Commerce Commission to Reduce Mileage Rate on Beef and Beer Cars—Other Testimony

Arthur Hale, general agent of the American Railway Association, was the principal witness at a hearing in the Interstate Commerce Commission's investigation of private car lines held at Chicago on April 1, 2 and 3, before Examiner Settle. Mr. Hale appeared for the Private Car Line Committee, consisting of himself and the chairmen of the General Managers' Associations of New York, Chicago, the Southeast and Texas, representing 130 railways operating 199,000 miles. His testimony gave definitely for the first time in this proceeding the attitude of the railways toward the private car lines and the questions that have arisen during the investigation.

After outlining the history of per diem and mileage payments he stated that the commission should recognize that the present basis of mileage for privately owned equipment had been fixed by the pressure of competition, and that the commission should treat the case as similar to the Industrial Railways case and reduce the mileage rates on refrigerator cars used for the transportation of beef and beer to a reasonable figure. For this he suggested six mills, with possibly no payment for the empty mileage, in place of the present rates of 1 cent per mile in the West and ¾ cent per mile in the East, for both loaded and empty mileage. Mr. Hale also advocated a continuation of the private ownership of special equipment and proposed a service charge to be paid by the shipper in addition to the freight rate on railroad-owned special equipment.

MILEAGE RATE ON BEEF AND BEER CARS TOO HIGH

Mr. Hale said he stated that the power of large shippers had prevented a reduction in mileage rates as a fact, not as a criticism, because such power is commonly exerted by anyone who controls a large tonnage, including the United States government. He believed that a mileage rate is preferable to a per diem rate for private cars, although not for railroad cars, because the small number of private cars removes the great objection of difficulty in checking mileage that existed in the case of railway cars, and because of the difficulty of deciding when a private car is in railway service, which opens a temptation for a railway to favor a private car owner by storing cars for him while paying per diem. He also thought it would be unfair for the mileage rate to compensate the private car owner, who is a shipper, for the full cost of owning the car beyond repairs and depreciation because to do so would give him free the advantage of being insured a full car supply at all times, which other shippers do not enjoy. The shipper who has this advantage should pay something for it to be charged against his business and not against the railroad. On this basis he had examined the commission's exhibits showing the earnings of private car lines, and found that the rates paid for beef and beer cars pay something more than repairs and depreciation. Therefore he declared they should be reduced. He also declared that while such cars ought to earn more per car mile for the railway than the ordinary car they actually earn less. The average earnings per car mile for all cars are about 15 cents loaded and 10 cents loaded and empty. Mr. Hale submitted a statement giving the results of a check of a large number of beef cars passing through gateways of six roads east of the Rocky mountains which showed the gross earnings to be 10.7, 9, 13.1, 12.3, 13.2 and 9.6 cents per car mile loaded and 5.3, 4.9, 6.5, 6.1, 6.6, and 4.8 cents loaded and empty.

He said the roads had never paid for switching mileage, partly because it was so small and partly because of the difficulty of computing it, but that if the private car lines desired it the roads would be willing to confer with them with a view to making an arrangement for doing so. He made a similar suggestion with reference to the publication of a tariff of distances to be used for checking mileage. The question of increasing the rate on tank cars from the present uniform basis of ¾ cent had been put up to the American Railway Association by the tank car owners, but the association did not think the rate should be increased.

Mr. Hale said the railways have always considered that the burden of experimenting with special equipment belonged to the shipper, and that the shipper has not made the experiment unless he saw some money in it. The attitude of the roads has not always been consistent, but has generally been one of resistance to the payment of mileage for private cars. This attitude has been overruled by traffic and competitive reasons. He believed a service charge should be made for special equipment covering the entire special service so that the shipper may elect whether to use a special car or an ordinary car. Initial icing should be done by the shipper in the case of his own cars, and re-icing by the railway at a stated refrigeration charge. He believed the practice of charging for ice by the ton should be discontinued. If a certain traffic demanding special equipment moves in steady volume during the year it is better for the railway to own its own cars, but otherwise it is better for the railway to contract with some car company that is in a position to utilize its equipment throughout the year. Types of special equipment that are suited only to certain kinds of commodities, such as tank cars, or for business requiring comparatively few cars or a guaranteed car supply should be owned by the shipper. The tank car, he said, is equivalent to the shipper putting his package on wheels and the beef trade can only be successfully handled by the packers in their own cars.

Mr. Hale saw no advantage in making private car lines common carriers. If a car line leases its car to a shipper it is a private car, and if to a railway it is a railway car. If there is anything wrong in the contract it can be corrected by changing the contract better than by any blanket declaration that the car line is a common carrier.

He did not see how conditions could be remedied by forming a pool or pools of special cars. Pooling has not yet been developed to a practical extent, he said, and he would not recommend the experiment of pooling special equipment until more experience has been had in handling a pool of ordinary equipment.

Asked about charges of dishonesty in the rendering of repair bills under M. C. B. rules, Mr. Hale said that formal action will be taken at the next convention of the Master Car Builders' Association that all irregularities in bills may be brought to the attention of the executive committee, and that the American Railway Association would give its assistance. W. H. MacEwen, traffic manager of the Peerless Transit Line, Cleveland, Ohio, who had made such charges at a previous hearing, had promised to give Mr. Hale in confidence the names of the roads he had in mind that the alleged irregularities might be investigated.

Mr. Hale was cross-examined at length by Luther M. Walter, attorney for Morris & Company and other packers, who demanded the introduction of the correspondence regarding the creation of the private car committee and its instructions. Mr. Hale agreed to submit a part of this, and stated that the owners of 1,000,000 cars had assented to the proposed rate of 6 mills for refrigerator cars. Mr. Walter also demanded the names of the roads that had given the information regarding the car mile earnings of refrigerator cars, and when Mr. Hale declined a motion was made to strike out this portion of his testimony. Mr. Hale said that he had only been able to obtain the figures confidentially, because the roads would not give them publicly in a case involving "so powerful a trade." George H. Boyle,

attorney for the commission, at this point said he desired to state for the record that the commission had encountered throughout the investigation a strong reluctance on the part of traffic men to give information individually concerning their relations with the packers, and although willing to give the commission access to all information they had themselves "appeared to be quite intimidated."

Mr. Walter also tried to get Mr. Hale to admit that shippers were entitled to a full return on their investment in cars. Mr. Hale said his point was that the return on the investment should come from some other source than the railways, and that the law does not require the roads to furnish "a butcher shop on wheels." He said that present mileage rates pay for repairs and depreciation and something toward return on the investment, and he did not consider "other expenses" as properly chargeable to the mileage rates. If the railway pays the full cost of owning a car under the control of a shipper the shipper has an advantage not given to ordinary shippers in being assured of a full car supply in addition to being provided with special facilities for the conduct of his business. Mr. Walter argued that the benefit of a full car supply at all times is an obligation imposed on the carriers in the case of all shippers. This Mr. Hale declined to admit. The private car owner who is not a shipper, he said, should get whatever he can from the lessee. If the railway leases the car it should pay all the cost of owning the car and receive a service charge from the shipper.

UNION TANK LINE

H. E. Felton, president of the Union Tank Line, which has asked the commission to increase its mileage rate from ¾ to 1 cent, was called for cross-examination on testimony he had given at the hearing at Washington in March. He stated that in the year 1912 the railways had received $22,767,722 in freight revenue on shipments in Union Tank Line cars, at an average rate of 15 cents per 100 lb., or $5.38 per car per day, for 11,566 cars. Out of this the railways had paid the company mileage at the rate of 19 cents per day, whereas, according to American Railway Association records, the average car earned $2.65 per day and cost 18.3 cents for repairs. He figured that at ¾ cents per mile Union Tank Line cars earn $68.98 per year in mileage and cost $65.07 for repairs and $3.29 for taxes, so that after allowing $42.70 for depreciation at 5 per cent. there is a deficiency of $42.08 per car. At a mileage rate of 1 cent, he said, the cars would earn $91.97 and still have a deficiency of $19.09. He also submitted a statement showing a comparison of the earnings per car on 24 other commodities between Chicago and New York, which were all less than the $151.25 for petroleum and its products.

The company holds itself out as ready to furnish to all shippers of petroleum and its products, cars at the proper time, and in sufficient quantities to take care of their needs "up to the limit of its equipment." Ninety per cent. of the equipment is covered by contracts with permanent or regular lessees, and there are also contracts to supply a definite number of cars. He thought an undue emphasis had been placed on the subject of empty mileage, saying that if the empty mileage of ordinary cars is 25 to 30 per cent., 50 per cent. empty mileage for special equipment is not unreasonable. The company has no agreement with any railroad as to furnishing cars to shippers. Shippers are charged $3 for each loading and a further charge of 75 cents per day for every day the car is under load, for cars over 8,500 gal. capacity, and $2.50 for each loading and 50 cents per day for cars of smaller capacity. The company's earnings from rentals for a year as reported to the commission were $2,320,806.

Asked by Attorney Boyle, for the commission, whether he would have any objection to his company filing tariffs of its rental charges with the Interstate Commerce Commission, he replied that he would if that would put the company in the position of a common carrier. The company now advises the commission of its rates in the form of a letter, but objects to filing formal tariffs. If the company were a common carrier, he said, it would be deprived of the privilege of limiting the distribution of its cars to shippers with whom the company has contracts. In that case the efficiency of the Union Tank Line would be destroyed. For the company to discriminate in its rental charges would be financial suicide, he said, and there is no incentive to discriminate.

Mr. Felton also put in evidence a letter he had written to the Interstate Commerce Commission outlining the conditions in the tank car line business and asking for an increase in the mileage rate from ¾ cent to 1 cent. He said in part:

"We believe there is an economic necessity for the existence of a privately owned tank car concern, such as the Union Tank Line Company, and that reasons can be presented to show that such an organization should exist; that it can furnish tank cars for the transportation of petroleum oils more efficiently than a railroad and with but small cost to the railroad and the shipper; that the small shipper who elects to use such cars of private ownership will have no cause for complaint, and that he will receive such cars more promptly and more suitable for his needs than he would cars of railroad ownership.

"Assuming that the railroad companies in 1912 owned the tank cars now belonging to the U. T. L. Co. and had placed them in their investment at the present depreciated value of said cars, namely, $854 each, the railroads would have charged off to their operating expenses 5 per cent. M. C. B. depreciation, or $42.70 per car, repairs per car $66.90 (railroad basis), taxes $3.29, a total of $112.89 per car, not taking into consideration losses due to cars destroyed in wrecks—as against which, under present conditions, their only cost for the use of the private tank car was the mileage they paid to the owner, namely, $68.98, a saving of $43.91 per car for the year.

"In view of all these facts it is evident that the railroads are not paying to the petroleum tank car owner a fair and reasonable compensation for the use of a vehicle specially designed under railroad rules of construction and maintained under railroad and I. C. C. rules of maintenance so that it may safely carry inflammable liquids, and we believe the commission will so decide after fully investigating the question of privately owned petroleum tank cars. We contend that the rate for the use of such cars should not be less than one cent per mile, loaded and empty, the present mileage equalization rules to prevail.

"The American Railway Association has declined to act on the tank car owners' application for an increased rate of mileage until after the present investigation in the matter of private cars is concluded. This leaves the tank car owner in rather bad shape for the reason that if the rate of compensation is not questioned at the hearing the commission might say that ¾ of one cent per mile was a reasonable rate and then the American Railway Association would naturally say it had no right to advance a rate which the commission held to be reasonable; it appears therefore that the tank car owners must at this proceeding ask for an increase in the rate of mileage compensation."

Mr. Felton also stated that the company desires to enlarge its organization, add materially to its equipment and be prepared to execute leases with still other shippers.

SANTA FE REFRIGERATOR DESPATCH

J. S. Leeds, manager of the Santa Fe Refrigerator Despatch, was questioned regarding the operation of refrigerator service on the Santa Fe. He expressed the opinion emphatically that a stated refrigeration charge is the only way fairly to measure the services performed. He did not believe in a charge based on the tonnage of ice, for the reason that the refrigeration service includes a number of factors in addition to the cost of the ice, such as the purchase, transportation and storage of ice, the switching of cars, the extra weight of refrigerator cars, increased supervision of the service, increased cost of maintenance, and the hazard of crop failures. He thought that the railways ought to own the icing facilities located along their rails, and not allow them to be owned and operated by car lines. One of the reasons which induced the Santa Fe to incorporate its own car lines

and to furnish its own refrigerator car supply was that it might be insured an adequate supply of equipment, which was not always possible under the former plan of making contracts with private car lines, and that it might be able to control its own cars. Asked for his opinion as to the propriety of making a special service charge for the use of special equipment, he thought that this would be impossible in the case of cars that are used for more than one purpose. For example, refrigerator cars may be used in place of ordinary box cars, and the company desires that these cars be so used in case of a surplus of refrigerator cars. He thought the mileage rate ought to be one cent in all parts of the country, instead of three-fourths of a cent on the eastern lines. The difference, he said, was made on account of competitive reasons. He thought it would be drawing too fine a distinction to make a difference in the mileage rates for different types of refrigerator cars, as between cars used for the fruit traffic and meat cars. It would be impracticable, he said, for railways to own all classes of special equipment, for the reason that a large number of roads would not have sufficient demand for these cars on their own lines.

M. C. B. RULES

T. W. Demarest, superintendent of motive power of the Northwest system, Pennsylvania Lines, and a member of the arbitration committee of the Master Car Builders' Association, was questioned at length regarding the Master Car Builders' rules. Some of the private car lines are members of the association, and others simply subscribe to the rules, he said. The principal packers' car lines are members, as is the Union Tank Line. He outlined the development of freight car construction and maintenance, and the corresponding changes in the rules whereby the owner's responsibility for defects has been gradually extended with the growing demand for better cars. The changes in rules, he said, have brought about a large number of improvements in car construction. He was also asked to explain the occasion for, and the operation of, the interchange rules, and the prevailing practice in connection with the repair and inspection of cars. He was also asked about the 10 per cent. increase in the M. C. B. allowances for labor and material which was adopted by the association in 1912, and which had been the occasion for numerous complaints made by representatives of the private car lines at previous hearings. He said there was no foundation for the charges made by representatives of the private car lines concerning the lack of reciprocity between themselves and the railways in the matter of repair charges, for the reason that the private car owner can make the same charges against the railways that the railways can make against him when they repair his cars. The 10 per cent. increase, he said, was a temporary expedient adopted between conventions of the association, and was later absorbed in an increase of the labor rate per hour from 24 to 28 cents. The charge was adopted in 1912, after the executive committee of the American Railway Association had asked the arbitration committee if there was not some way of reducing the large number of bad order cars. It was felt that, as the M. C. B. allowance simply covered labor and material, without any allowance for overhead charges, and the use of facilities, that an increase in the rates to provide for the overhead expense would induce railways to better maintain their cars. Up to November 1, 1912, the allowances included no charge for overhead expenses. If cars were repaired in contract shops a considerably higher rate would have to be paid. Nor do the present rates make adequate allowances. In view of this fact he thought that the present prices are too low, instead of too high, as charged by many of the representatives of the private car lines. He had received no complaints from private car lines as to the character of repair work performed in railroad shops, but he had had some complaints against the bills rendered to private car lines as well as to railroads. Approximately a million and a half of freight cars have been repaired under his jurisdiction during the past year, and allowing two items to a car, there were over 3,000,000 items involved, and he had received complaints only at the rate of about one a month, and these were mostly on account of car misunderstandings and clerical errors. He would not admit that he could not repair cars as well as the owner, but said that the railway shops in general were not equipped for making the special repairs often required by refrigerator cars, and that in such cases the cars were often sent to their home shops for repairs. He said there was no material difference in construction and in quality of materials between railroad and private cars of the same type. He outlined very briefly the proceedings at the Master Car Builders' Association's convention in 1909 and in 1910, at the first of which W. H. Lewis, superintendent of motive power of the Norfolk & Western, read a letter making charges regarding the abuse of the M. C. B. repair card. This was fully discussed at the meeting, after which a resolution was adopted authorizing the executive committee to make a full investigation of all cases brought to court. At the 1910 meeting Mr. Lewis read another letter, in which he stated that conditions had materially improved during the year, and the resolution was reaffirmed. The resolution is still in effect, but from 1909 up to the present day only one case has been brought before the committee, which proved to be the result of a misunderstanding and was quickly adjusted.

Referring to the testimony of a representative of a private car line who had made a complaint at the previous hearing regarding unfair charges made against his line by the railways, Mr. Demarest asserted emphatically that if any such charges had been brought before the executive committee they would have been promptly investigated. The association was anxious to get at the bottom of the charges, but the committee could take no action without complaint. Taking the total number of freight cars in the country as approximately 2,700,000, and assuming that each car is shopped about 12 times a year, he estimated that there are about 33,000,000 repair bills each year, averaging about two items to a car or 66,000,000 repair items in a year. In view of the fact that the committee has received but one complaint since 1909, he thought the charges of general abuse of the repair cards were unfounded.

J. W. Taylor, secretary of the Master Car Builders' Association, confirmed Mr. Demarest's statement regarding the discussion of the abuse of the M. C. B. repair card at the 1909 and 1910 conventions, and he filed copies of the proceedings of those two conventions, containing a full discussion of Mr. Lewis' letters, for the record. He also filed a copy of correspondence with W. H. MacEwen, traffic manager of the Peerless Transit Line, Cleveland, Ohio, containing general charges that his company had been overcharged by thousands of dollars a year through dishonesty in connection with billing for repairs made by the railways. A letter of this kind addressed to the Union Pacific Railroad has been referred by it to the executive committee of the Master Car Builders' Association, which had instructed Secretary Taylor to write to Mr. MacEwen asking for a full statement of the evidence that it might be investigated. This Mr. MacEwen refused to do in a long letter in which he asserted that the association had demonstrated itself as powerless, if not unwilling, to handle the situation. The letter also asserted that the railways could furnish the committee with plenty of evidence if it desired to make a thorough investigation.

Mr. Demarest was re-called for cross-examination regarding the changes in conditions affecting the maintenance of freight cars. He said the rate for labor had increased from 20 cents an hour in 1903, to 24 cents in 1909, and 28 cents in 1913. There had also been some increase in material cost, greatly due to increased weights of material required, and particularly to the higher price of lumber. Old style cars would cost more to maintain under present conditions than several years ago, but the new cars now being built cost very little, if any, more for maintenance than the old style, because of their improved construction. During the transition from wood to steel cars, he said, repair costs went up, but after a large number of steel cars had been installed the average maintenance cost was reduced,

particularly in the last 10 years. He was asked by Attorney Boyle whether it would be practicable to maintain a separate code of rules for private cars. Last May, he said, a committee of private car line owners had asked the arbitration committee whether anything of this kind could be done. The opinion of the committee was that it was not advisable, and he could see no reason why private cars should be treated differently from others. He said that the only way in which the private cars are discriminated against under the rules, is that the private car line owners do not get the benefit of scrap. He admitted that the changes in rules had increased the owner's responsibility for defects, and decreased the user's defects, but asserted that this was caused by changes in methods of operation and were not done for the benefit of the railroad. The rules apply both to railroad and to private car owners, and it is up to the owners to supply a car which is adequate to present-day conditions of transportation.

Mr. Walter tried to get the witness to admit that the private car lines were discriminated against in the rules because of lack of reciprocity in the relations between car lines and railroads whereas the relations between the railroads are more or less reciprocal. This the witness declined to admit. He thought that approximately 34 per cent. should be added to the present prices to provide for overhead charges, although he admitted that probably the Pennsylvania lines, with their organization, were able to do repair work for less than the prices fixed by the M. C. B. rules. He was cross-examined very briefly regarding the controversy in 1909 and 1910 over the abuse of the M. C. B. repair cards. He replied that the resolutions passed at that time were a plain invitation to anyone who had evidence of dishonesty to present it to the committee and that no one had done so. He asserted that the elimination of the repair card in 1913 afforded no greater chance for dishonesty in billing and that it is impossible to legislate honesty into human beings by means of rules.

D. B. Phelps, superintendent of transportation of the Louisville & Nashville, testified regarding the use of special equipment on his lines. He did not think that the traffic originating on the Louisville & Nashville justified its furnishing its own tank or refrigerator cars. In reply to a question, he said that he was in favor of making a service charge for refrigerator cars, but did not believe such charges should apply to coal cars. He hardly considered coal cars as special equipment for the reason that the traffic is more regular. On private coal cars the mileage rate is 6 mills, and because these cars move more slowly and make a lower mileage a day the net revenue on such cars is less than on refrigerator cars which move under expedited service, and which receive higher mileage rates. The Louisville & Nashville formerly owned 75 tank cars which had been sold for the reason that it was not considered practicable for the railways to own enough tank cars to take care of the varying demand.

HANCOCK COAL SPRINKLER

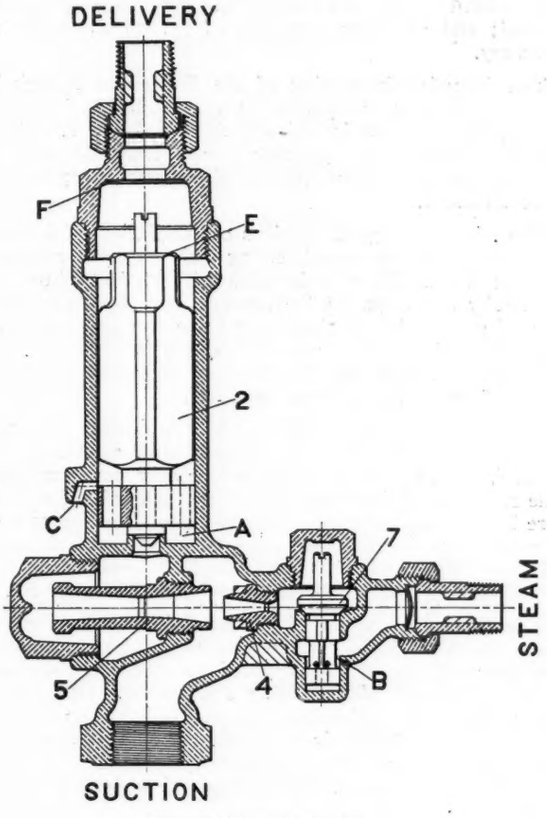
A sprinkler, manufactured by the Hancock Inspirator Company, New York, for wetting down the coal on locomotives, was described in the *Railway Age Gazette*, June 27, 1913, page 1613, and an improved form in the issue of August 29, 1913, page 385. A further development of this device, superseding the other two forms, has recently been placed on the market.

This sprinkler acts on the principle of an ejector. The principal feature is a valve which automatically discriminates between steam and water and whose action prevents any sudden and unexpected discharge of steam through the hose. The device is generally applied on the strainer or on the suction pipe of the injector by the use of a short connecting nipple having a bend so that the sprinkler will be in a vertical position. A valve is placed in the steam pipe at a point where it can be conveniently reached.

In operating the coal sprinkler, the steam valve in the pipe is opened wide, which action opens valve *7*. This also closes the drip hole *B*, the piston end on the lower end of the guiding stem covering the hole. Steam will now flow through nozzle *4* forming a jet and combining with water in tube *5*. There will not, however, be a flow of steam in starting, as tubes *4* and *5* are always under water because of the location of the sprinkler at a point lower than the tank.

Steam flows into the pressure chamber *A* and valve *2* is raised. Port *C* is also closed and the water is forced through the delivery pipe to the hose.

Should the flow of water be interrupted or the injector refuse to work, valve *2*, which discriminates between steam and water, will close the sprinkler so that no steam escapes to the hose. The steam, under these conditions, flows into the pressure chamber *A* and forces valve *2* upward The end *E* of valve *2* seats against the surface *F*, thus making it impossible for steam to flow to the delivery tube. When not operating, both valves



Hancock Coal Sprinkler

will seat. The valve *2* is heavy enough to prevent water flowing up the delivery pipe, and all the water in the delivery pipe will flow out of the drain hole *C*. At the same time the steam valve *7* will seat, preventing water from flowing up the steam pipe and all water or steam in the latter will drain out at the hole *B*. The sprinkler uses comparatively cold water, no steam can escape, and it is self-draining.

Traffic Through the Suez Canal.—In December, 1913, 651 vessels carrying 2,199,000 metric tons of merchandise passed through the Suez Canal. Of these ships 231 were eastbound and 220 were westbound. Of the former 143 had cargoes amounting to a total of 1,055,000 metric tons as compared with 783,000 metric tons carried through the canal eastbound in December, 1912. Of the 220 vessels bound west, 159 had cargoes and carried 1,144,000 tons as compared with 1,269,000 tons during December, 1912. Of the total number of vessels which passed through the canal, 102 were mail steamers, and of these 50 were going to the east and 52 had destinations in the west.

General News Department

The Pennsylvania Lines West of Pittsburgh on April 5, annulled 25 passenger trains in the territory between Chicago and Pittsburgh, in addition to 25 trains which were taken off previously.

The Atchison, Topeka & Santa Fe last week increased the working time of 1,000 men at its San Bernardino, Cal., shops by 25 per cent. over the schedule which has been maintained for some time.

A robber who boarded a train of the Seaboard Air Line near Atlanta, Ga., on April 2, failed to carry out his purpose. R. C. Fletcher, the express messenger, when covered with a revolver and ordered to open the express safe, responded by opening fire instead; and after the exchange of several shots, the robber got away.

The forty-fourth meeting of the Burlington Association of Operating Officers was held at the office building of the Chicago, Burlington & Quincy in Chicago, April 6, 7 and 8. The meeting was attended by operating officers from all parts of the System, and numerous subjects of interest to operating men were discussed.

The wireless telegraph stations of the Delaware, Lackawanna & Western are now experimenting with telephone conversations without wires. On a train filled with students from Cornell University last week, the Lackawanna gave the use of the wireless telegraph without charge; and the students sent 118 messages from the train. From the company's wireless stations at Hoboken, Scranton and Binghamton, the messages were sent by telephone to the persons addressed.

The engine and three cars of the Continental Limited train on the Wabash fell into the Wabash river at Attica, Ind., on April 5, when two spans of the bridge over the river gave way. The structure of the bridge had been weakened a few hours before by the derailment of a freight train. The engineman, fireman and express messenger were killed and several passengers injured. The cars which went through the bridge were the mail car, express car and combination smoker and baggage car.

The dining department of the Pennsylvania now has surprise checking. That is to say, inspectors, who look very carefully for dirt and for all evidences of unsatisfactory management, visit the kitchens of the dining cars and the kitchens and all other rooms of station restaurants, every month, or oftener, without announcing their approach. The inspectors are to be shifted occasionally from one territory to another so that each car and each restaurant will be inspected frequently by different men.

The "special merit roll" of employees, printed in the Baltimore & Ohio *Employees' Magazine* for March fills ten pages. This is not merely a roll or list, but a collection of paragraphs describing particularly the acts of each employee for which he received special mention; and 18 of these paragraphs are accompanied each by a portrait of the person to whom it refers. One of these portraits is that of Miss Crosson, a ticket agent, who flagged a train when the track was obstructed. Another is that of a young man, not an employee, who prevented a train from running on to a broken rail.

Efficiency Exhibit in New York

The first "National Efficiency Exposition and Conference" is being held under the auspices of the Efficiency Society at the New Grand Central Palace, New York City, this week. From the transportation standpoint the most interesting exhibits are those of the New York State Public Service Commission (First district) and the Interborough Rapid Transit Company. The exhibit of the Public Service Commission includes a number of interesting illustrations of the elimination of grade crossings in New York City; a model of one of the new subway cars to be used by the New York Municipal Railways Corporation and one of the new subway stations to be built at the Grand Central Terminal and at Times Square.

The Interborough Rapid Transit Company shows a model of a power station illustrating the losses in power from the furnace to the third rail by the use of small streams of water cut off at the various points from the main stream. The Interborough buys all its coal on the thermal unit basis and the apparatus for conducting the coal tests is set up in the exhibit. Various diagrams are given showing the increase in efficiency in power plant and train operation during the past nine years. There is also included a model, in operation, showing the method of time spacing of trains approaching stations, by the use of block signals and automatic stops very close together, so that a train can safely approach very close to a train ahead of it standing at a station, thus reducing delays. The alarm system by which the current is cut off the third rail in case of emergency is also shown in working order. The Interborough has on the subway division 2,000 automatic block signals and these operated perfectly 200,000,000 times in 1913. One of the most interesting parts of the exhibit is a series of historical illustrations showing the various steps in the progress from the first street railway in the world, which was operated by horse cars in New York, in 1832, to the present-day 10-car subway trains. In 1837 horse cars and omnibuses carried 25,000 passengers daily in New York. In 1871 with steam elevated trains and horse cars there were 407,000 passengers carried daily, while in 1914 electrically operated elevated, surface and subway railways 5,763,000 passengers are carried daily.

The New Haven's Pension List

The directors of the New York, New Haven & Hartford have pensioned 38 employees, increasing the pension roll by $1,260 a month. The aggregate of the pension roll at the present time is $140,000 per annum. Recently, in view of financial difficulties, some anxiety has been felt on the part of many of the men who have lately become incapacitated. This will now be relieved.

The New Haven has no definite rule covering the granting of pensions, but for a number of years has made provision for employees who have performed long and faithful service. For those who have given 30 years of continuous service, and who are certified to as incapacitated by a physician, the basis of pensions is 1 per cent. of the average monthly earnings for the past ten years for each year of service, with the maximum fixed at 40 per cent. The award of a pension does not necessarily mean that an employee's connection with the company is severed; but that those for whom provision is made, and who are not totally disabled, shall perform such service as may be reasonably required of them. As a matter of fact, however, in these days the demands of the railroad service are such that those who have reached the pension age are usually unable to perform other service. Thus, of the thirty-eight employees just added to the pension list, twenty-five were reported as unfit for further work of any kind.

The average age of the 38 is 67.66 years, the average length of service 39.16 years, and the total average monthly earnings $3,432.42. There is one woman in this number, Miss Alice M. Prout, of Suffield, Conn., a telegraph operator and clerk. Of the others, twelve are conductors and nine engineers.

The Pullman Company

Returns to the Interstate Commerce Commission made by the Pullman Company for the fiscal year ending June 30, 1913, show that on the latter date the company had in service 6,784 cars, an increase of 683 over 1912. Of this total 4,772 cars were standard sleeping and 728 were tourist sleeping cars. There were also 1,103 parlor cars, 36 private cars, 14 dining cars and 131 other cars. The company's total operating revenue for the year was $40,103,216 after the deduction of a debit of $2,547,472, the total including $34,671,360 berth revenue, $6,660,065 seat revenue, $636,577 from the chartering of cars and $606,367 mile-

age revenue. The total number of revenue berth passengers was 14,053,849, the average revenue per passenger being $2.47. The number of revenue seat passengers was 10,810,367, and the average revenue per passenger but 62 cents. The average number of revenue passengers per car per day was 12, having decreased from 14 for the year before.

There were in the employ of the company on June 30, 1913, 20,812 persons, including the general officers. It is interesting to note that in this number there were included 6,750 porters and maids receiving an average daily compensation of $1.11. The average daily compensation for all classes was $1.93.

The company also gives some interesting figures in relation to the use of its 6,784 cars. The total number of car miles was 690,892,504, with the result that the average number of car miles per car day reached a figure of 326.62. This, although it is a decrease from the 396 miles shown in 1911-12, compares with the Pennsylvania Railroad's record of miles per passenger car per day of approximately 165 for the year ended December 31, 1912.

Sante Fe Loss and Damage Conference

More than 100 officers of the Atchison, Topeka & Santa Fe, from all parts of the system, held a meeting in San Diego, Cal., the week of March 23, to plan for increased efficiency in handling freight, with the view to eliminating loss and damage as far as possible. F. A. Lehman, of Chicago, assistant to the vice-president in charge of operation, is chairman of the Santa Fe's standing loss and damage committee. F. C. Maegly, of Chicago, assistant general freight agent, is secretary.

"We have been hammering on the loss and damage item through organized effort for five years, with encouraging results, but there still is room for improvement," said Chairman Lehman. "That is why we meet twice a year—to improve our methods of handling freight. Efficiency is our slogan, and when everybody adopts it in spirit and in truth, we shall have the loss and damage item cut to the bone. A loss or damage claim, as a rule, means that somebody has been careless, and our activity is in the direction of inducing every one having to do with the transportation of freight to exercise greater care in his work. By the employment of modern efficiency methods we expect to overcome this difficulty."

"The movement is not to get out of paying legitimate claims for loss and damage, but to prevent the causes for such claims," said Secretary Maegly. "We have been fortunate in gaining the co-operation of our patrons in this movement. The shipper is just as desirous of receiving his freight in first class condition as the railway company is of delivering it to him in first class condition. Our interests, therefore, are mutual. When we asked the shippers to assist us by adopting modern methods for the preparation of packages for transportation, and to see that their employees exercised more care in handling freight to and from the depots and cars, they promptly complied with our requests. On our part we hope, by a more careful loading and unloading of cars and of handling trains, to improve our showing year by year, till the item complained of is practically eliminated."

The following statement adopted at the San Diego meeting shows the policy of the Santa Fe in handling the subjects under consideration:

"That it may be in fact a good-service movement, the Santa Fe loss and damage organization will direct its efforts toward locating the causes of trouble and devising practical means of improvement.

"Special attention will be given to equipment conditions to the end that all cars may be suitable for the loading intended. Attention also will be given to uniform and better methods of loading, stowing and bracing freight, both that which is loaded by carrier's employees, and the carload freight which is almost universally loaded, stowed and secured in the cars by shippers.

"Matters of general interest will be brought to the attention of organizations of shippers, thus promoting interest on the part of their membership, and directly on the part of other shippers, in the matter of properly preparing, packing and marking freight for shipment.

"The difficulties attending each commodity will be specialized to the end that each of the causes contributing to depreciation in value during transit may be found and dealt with in a practical manner, each department contributing its essential part to successful handling and delivery."

Niagara Frontier Car Men's Association

The Niagara Frontier Car Men's Association has been organized at Buffalo, N. Y., with about 100 members. The objects of the association are to bring together those interested in car department matters for the purpose of exchanging ideas and educating car men to a keener knowledge of economy in maintenance of equipment and for the settlement of disputes.

The following officers were elected: President, W. H. Sitterly (Penn.); first vice-president, W. B. Shone (N. Y. C.); second vice-president, J. McCormick (L. V.); secretary, E. N. Frankenberger; treasurer, C. J. Charlton.

The American Society of Mechanical Engineers

At the meeting of the American Society of Mechanical Engineers on Tuesday, April 14, in New York City, a paper will be read by Willard C. Brinton, on the subject of "Graphic Statistics for the Engineer and the Executive." It is hoped that a number of railroad officers will be present to discuss the question. The meeting will be held at 8:15 p. m. at the Engineering Societies building, 29 West Thirty-ninth street.

New England Railroad Club

At the regular meeting of the New England Railroad Club on April 14, a paper will be presented by L. R. Pomeroy, consulting engineer, entitled "Physical Valuation of Railroads."

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

Air Brake Association.—F. M. Nellis, 53 State St., Boston, Mass. Next convention, May 5-8, Hotel Pontchartrain, Detroit, Mich.

American Association of Demurrage Officers.—A. G. Thomason, Boston, Mass. Convention, April 21, St. Louis.

American Association of General Passenger and Ticket Agents.—W. C. Hope, 143 Liberty St., New York.

American Association of Freight Agents.—R. O. Wells, I. C. R. R., East St. Louis, Ill. Next convention, April 21, Rice Hotel, Houston, Tex.

American Association of Railroad Superintendents.—E. H. Harman, St. Louis, Mo.; 3d Thursday and Friday in May.

American Electric Railway Association.—E. B. Burritt, 29 W. 39th St., New York.

American Electric Railway Manufacturers' Assoc.—H. G. McConnaughy, 165 Broadway, New York. Meetings with Am. Elec. Ry. Assoc.

American Railway Association.—W. F. Allen. 75 Church St., New York.

American Railway Bridge and Building Association.—C. A. Lichty, C. & N. W., Chicago. Next convention, October 20-22, 1914, Los Angeles, Cal.

American Railway Engineering Association.—E. H. Fritch, 900 S. Michigan Ave., Chicago.

American Railway Master Mechanics' Association.—J. W. Taylor, Karpen Building, Chicago. June 15-17, Atlantic City, N. J.

American Railway Tool Foremen's Association.—A. R. Davis, Central of Georgia, Macon, Ga. Next convention, July 20-22, Hotel Sherman, Chicago.

American Society for Testing Materials.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa. Next annual meeting, June 30 to July 4, Hotel Traymore, Atlantic City, N. J.

American Society of Civil Engineers.—Chas. W. Hunt, 220 West 57th St., New York; 1st and 3d Wed., except June, July and August, New York. Annual convention, June 2-5, Baltimore, Md.

American Society of Engineering Contractors.—J. R. Wemlinger, 11 Broadway, New York; 2d Thursday of each month, at 2 P. M., 11 Broadway, New York.

American Society of Mechanical Engineers.—Calvin W. Rice, 29 W. 39th St., New York. June 16-19, St. Paul-Minneapolis, Minn.

American Wood Preservers' Association.—F. J. Angier, B. & O., Baltimore, Md. Next convention, January 19-21, 1915, Chicago.

Association of American Railway Accounting Officers.—C. G. Phillips, Highland Park, Ill. Annual meeting, June 24, Minneapolis, Minn.

Association of Railway Claim Agents.—C. W. Egan, B. & O., Baltimore, Md. Next convention, May, St. Paul, Minn.

Association of Railway Electrical Engineers.—Jos. A. Andreucetti, C. & N. W. Ry., Chicago. Semi-annual meeting, June 12, Hotel Denis, Atlantic City, N. J. Annual convention, October 19-23, Chicago.

Association of Railway Telegraph Superintendents.—P. W. Drew, 112 West Adams St., Chicago. Next convention, May 19-22, New Orleans, La.

Association of Transportation and Car Accounting Officers.—G. P. Conrad, 75 Church St., New York. Annual meeting, Hotel Chalfont, Atlantic City, N. J., June 18-19.

Association of Water Line Accounting Officers.—W. R. Evans, Chamber of Commerce, Buffalo, N. Y.

Bridge and Building Supply Men's Association.—L. D. Mitchell, Detroit Graphite Co., Detroit, Mich. Meeting with American Railway Bridge and Building Association.

Canadian Railway Club.—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal.

Canadian Society of Civil Engineers.—Clement H. McLeod, 176 Mansfield St., Montreal, Que.; 1st Thursday, October, November, December, February, March and April, Montreal.

Car Foremen's Association of Chicago.—Aaron Kline, 841 Lawler Ave., Chicago; 2d Monday in month, except July and August, Lytton Bldg., Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Fri. in Jan., May, Sept. and Nov. and 2d Thurs. in March, Hotel Statler, Buffalo, N. Y.

CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—Edw. J. Dugan, P. O. Box 654, St. Paul, Minn.; 2d Monday, except June, July, August and September, Old State Capitol Bldg., St. Paul.

ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after second Saturday, Harrisburg, Pa.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, Oliver Bldg., Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Richmond, Va. Next convention, May 13, Hotel Galvez, Galveston, Tex.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 605 Grand Central Station, Chicago; Wed. preceding 3d Thurs., Transportation Bldg., Chicago.

INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, 11, rue de Louvain, Brussels, Belgium. Convention, 1915, Berlin.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—C. G. Hall, 922 McCormick Bldg., Chicago. Annual convention, May 18-21, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 829 West Broadway, Winona, Minn. Next convention, July 14-17, Hotel Sherman, Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio. Next convention, third Tuesday in August.

MAINTENANCE OF WAY MASTER PRINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—T. I. Goodwin, C. R. I. & P., Eldon, Mo. Next convention, November 17-19, 1914, Detroit, Mich.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York. Next annual meeting, May 25-28, Hotel Walton, Philadelphia.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Karpen building, Chicago. June 10-12, Atlantic City, N. J.

MASTER CAR & LOCOMOTIVE PAINTERS' ASSOC. OF U. S. AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Next convention, September 8-11, Nashville, Tenn.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Next convention, March 15 to 19, 1915, Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.

NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria, Ill.; 2d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 30 Church St., New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Penna. R. R., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOC.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Assoc. Ry. Elec. Engrs.

RAILWAY FIRE PROTECTION ASSOCIATION.—C. B. Edwards, Mobile & Ohio, Mobile, Ala. Annual meeting, 1st Tuesday in October.

RAILWAY GARDENING ASSOCIATION.—J. S. Butterfield, Lee's Summit, Mo.

RAILWAY DEVELOPMENT ASSOCIATION.—W. Nicholson, Kansas City Southern, Kansas City, Mo.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Bethlehem, Pa. New York, June 9. Annual meeting, Bluff Point, N. Y., September 22.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C, Collinwood, Ohio. Next convention, May 18-20, Hotel Raleigh, Washington, D. C.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 2136 Oliver Bldg., Pittsburgh, Pa. Meetings with M. C. B. and M. M. Associations. Atlantic City, June 10 to 17.

RAILWAY TELEGRAPH & TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 50 Church St., New York. Meetings with Assoc. of Ry. Teleg. Supts.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va.; 2d Monday in month, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W., Sterling, Ill. Next convention, September 8-10, 1914, Chicago.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.

SALT LAKE CITY TRANSPORTATION CLUB.—R. E. Rowland, Hotel Utah Bldg., Salt Lake City, Utah; 1st Saturday of each month, Salt Lake City.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, 3868 Park Ave., New York. Meeting with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—Carl Nyquist, La Salle St. Station, Chicago.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., 10 a. m., Candler Bldg., Atlanta.

TOLEDO TRANSPORTATION CLUB.—J. S. Marks, Agent, Interstate Despatch, Toledo, Ohio; 1st Saturday in month, Boody House, Toledo.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillsburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York; last Tuesday in month, except June, July and August, Waldorf-Astoria, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie R. R., Pittsburgh, Pa.; meetings bimonthly, Pittsburgh. Annual meeting, 2d Monday in June.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library building, St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7122 Stewart Ave., Chicago. Next convention, June 16, Jacksonville, Fla.

TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; first Saturday after first Wednesday.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, Supt.'s office, L. S. & M. S., Detroit, Mich.; meetings monthly, Normandie Hotel, Detroit.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y. Next meeting, August, Chicago.

UTAH SOCIETY OF ENGINEERS.—Fred D. Ulmer, Oregon Short Line, Salt Lake City, Utah; 3d Friday of each month, except July and August.

WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen building, Chicago; 3d Tuesday of each month, except June, July and August, Karpen building, Chicago.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago; regular meeting 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings.

Traffic News

The Boston & Albany has filed with the Massachusetts Public Service Commission, a new local freight tariff, making general advances throughout the state. On a few commodities the rates in carloads are slightly reduced.

W. M. Hopkins, until recently manager of the transportation department of the Board of Trade of Chicago, and formerly general freight agent of the Minneapolis & St. Louis, has opened an office as a traffic specialist, at 72 West Adams street, Chicago.

Beginning on May 1 the Minneapolis, St. Paul & Sault Ste. Marie will sell round trip tickets at one cent a mile in each direction for parties of five or more persons traveling on one ticket from Chicago to North Dakota points. The tickets will be good only on Monday of each week, and are intended to encourage immigration.

The Southern Railway has started to build up South American traffic, in anticipation of the opening of the Panama canal. Charles L. Chandler has been appointed agent of the traffic department, with office at Chattanooga, to attend to this work. Mr. Chandler was formerly in the State Department at Washington and has had much experience in Latin-American countries.

The Chicago, St. Louis & Gulf Transportation Company has announced that beginning on May 1 it will run barges daily between Chicago and LaSalle, Ill., via the drainage canal. Negotiations are said to be pending for the purchase of a fleet of river barges which will operate between LaSalle and New Orleans, and for two packet boats to carry passengers through to the gulf; this service to start about May 15.

The Ontario Car Ferry Company, operated in the interest of the Grand Trunk Railway, has ordered a new steamship of 5,000 tons to carry freight and passengers across Lake Ontario, between Coburg, Ont., and Rochester, N. Y. At present, the traffic between these points is carried on a single steamer, the "Ontario No. 1." The "Ontario No. 2," the new vessel, will carry 28 freight cars and have accommodations for 900 passengers. She is 317 ft. long and 56 ft. beam.

The Southern Pacific expects to carry this year eastward from southern California, 71,776,250 cantaloupes, or enough to fill 5,000 cars. This is nearly 50 per cent. greater than the quantity shipped last year. The shipping season begins about May 20, and lasts six weeks. About eight tons of ice has to be used to cool each car before the shipment starts, and a car has to be iced six or eight times on its way to its eastern destination. The Southern Pacific expects to use about 45,000 tons of ice for these cantaloupes.

The United States Express Company has sent notices to the railroads over which it operates that it intends to go out of business on the termination of its contracts, which, on different roads, expire on April 30, May 31 and June 30. The company operates over about 40 roads, the principal ones being the Baltimore & Ohio, the Chicago, Rock Island & Pacific, the Delaware, Lackawanna & Western, the Lehigh Valley, the Fort Worth & Rio Grande, the Pere Marquette, the Philadelphia & Reading, and the St. Louis & San Francisco. The Reading is not included in the list of companies to which notices have been sent.

Chairman Allison Mayfield, of the Texas Railroad Commission, has announced that the commission has no intention of adopting in Texas a tariff of rates for express shipments calculated on the basis promulgated by the Interstate Commerce Commission for interstate traffic. These rates are higher than the present charges prevailing in the state. The railroad commission has received many protests against the adoption of the interstate commission's rates in Texas. The express companies, on the other hand, have requested that the new rates be adopted. Chairman Mayfield states that the express rates in Texas were put in effect after two sieges of litigation with the express companies, since which time two general reductions have been made besides certain changes in the regulations which effect reduc-

tions. The Texas commission has nine commodity tariffs applying on express business, and a large part of Texas express traffic moves on the commodity tariffs.

Luther M. Walter and John S. Burchmore, attorneys for the National Industrial Traffic League, have filed a brief with the Interstate Commerce Commission on the propriety of a "spotting" charge or a charge for delivery upon industrial side tracks. The argument includes the following propositions: "Industrial side tracks are part of the terminal facilities of the carriers, and service over such tracks is part of the transportation, which the carrier is required to furnish under the act to regulate commerce. The owner of an industrial side track is entitled to compensation from the carrier for the use of that track. The establishment of a charge for service upon the industrial side track, when no similar charge is published for like service upon the team tracks of the carrier, is an unjust discrimination in violation of section 3 of the act to regulate commerce. The present method of publishing transportation charges violates no provision of the law, and is conducive to the best interests of the shipper, the carrier and the public."

The chairmen of the various classification committees, R. N. Collyer of the Official, R. C. Fyfe of the Western, and W. R. Powe of the Southern, appeared last week before the senate committee on interstate and foreign commerce, in opposition to bills authorizing the Interstate Commerce Commission to make a uniform classification for the entire country. Mr. Collyer said that the committees are working toward a uniform classification just as fast as the public and the commission will allow them, and cited the opinion of the Interstate Commerce Commission on the Western Classification No. 51 as the best evidence in support of his contention that the committees already in existence are working as fast as shippers throughout the country will allow them. He also called the attention of the senators to the fact that the commission had advised the Western committee that it ought not to give the results of its labors to the public in such large quantities at one time, but should proceed with the subject in more detail.

A question has arisen as to the status of several short railways which were suspended from the per diem rules agreement by the American Railway Association. Announcement was made in last week's issue, page 804, of the order issued by the Interstate Commerce Commission suspending the cancellation of allowances to 20 industrial railways, which had been filed by the trunk line railways effective on April 1, but not the tariffs affecting the railways covered by the industrial railways case. Seven of these roads affected by the commission's suspension, the Chicago & Illinois Western, the Chicago Short Line, the Illinois Northern, the Illinois Terminal, the Pullman, the Susquehanna & New York and the Chestnut Ridge were included in the list of 18 industrial roads which were suspended from the per diem rule agreement of the American Railway Association on March 1. The 13 other roads included in the commission's suspension of cancellation were not included in the list of roads suspended by the American Railway Association. The eleven other roads suspended by the American Railway Association are the Union Railroad, Pittsburgh; the Benwood & Wheeling Connecting, the Lake Terminal, the McKeesport Connecting, the Monongahela Connecting, the Mercer Valley, the Newburgh & South Shore, the Pittsburgh, Allegheny & McKeesport, the Pittsburgh & Ohio Valley, the South Buffalo, and the Northampton & Bath. The suspension was to remain in force until the roads should be declared eligible by the Interstate Commerce Commission to reenter the per diem agreement.

The Terminal Railroad Association of St. Louis has filed in the United States Supreme Court a motion asking the modification of the final decree entered recently in the anti-trust suit against the company. The motion states that the injunction against its performing any other service than that of furnishing terminal facilities is a hardship and interferes with the proper management of its business. It therefore asks that the first article of the final decree be stricken out. The article in question states that the Terminal Railroad Association of St. Louis "is an unlawful combination, when it, and the various bridge and terminal companies composing it, are operated as railroad transportation companies, but that the combination may exist and continue as a lawful unification of terminal facilities upon abandoning all operating methods and charges as and for railroad transportation and confining itself to the transaction of terminal business, such as supplying operating facilities for the interchange of traffic between railroads." The Terminal Association has also sent out letters to the 165 industries located on its lines, announcing that if the final decree of the court is to be followed literally car movements from one industry to another on the terminal lines must be discontinued. It urges an appeal to Edward C. Crow, attorney for the United States in this suit, asking him to agree to a modification of the decree so that service will not be impaired. The letter states that by giving the language of the decree a literal construction the association would be enjoined from performing switching services for industries located upon its tracks, which would involve purely local movements, such as hauling a car from one point on its tracks to another point on its tracks, where such car was received from an industry and delivered to an industry. The company at present switches a great many cars not connected with the services performed by it for the railroad companies, and it is stated therefore that unless this language in the final decree be modified services of this character now performed may be unlawful and must be discontinued.

General Revision of Passenger Fares

Practically every railway in the United States on April 1 filed revised local and joint passenger tariffs with the Interstate Commerce Commission, effective May 1, readjusting the fares to conform to the "aggregate fare" clause of the fourth section of the interstate commerce act, as amended in 1910, which provides that carriers may not "charge any greater compensation for a through route than the aggregate of the intermediate rates subject to the provisions of this act." Maximum forces of rate clerks have been employed almost continuously on the work since last June, when, after the rendering of the decision of the Supreme Court in the Minnesota rate case the commission announced that no further extension of time would be granted beyond May 1, 1914.

The western lines have revised most of their through fares on a combination of state fares; which results in putting through fares in the middle western states on practically a two-cents-a-mile basis. The eastern lines, however, in compiling the basing fares for use in constructing through interstate fares, had not generally recognized the two-cent intrastate fares. They had maintained them on an approximate basis of 2½ cents. In the revision, therefore, they have maintained the present fares between the principal gateways and have advanced a large number of their local intermediate fares, but not so that the combination should exceed the through fare. Many fares, however, have been reduced. In Pennsylvania and New York the state fare is generally two and one-half cents.

In the west the general prevalence of two-cent fare laws had already reduced over 50 per cent. of the interstate fares to the two-cent basis when the Minnesota rate decision was rendered. Under the aggregate fare clause the influence of the shorter interstate fares then made it necessary to reduce the long-distance fares between gateways.

After the passenger traffic departments received advice of the decision in the Minnesota case and it was decided not to ask for a rehearing, readjustment of the intrastate fares in Minnesota and Missouri was at once undertaken. When that work was completed, attention was given to a general readjustment of interstate fares, as the change in the rate per mile, intrastate, in Minnesota and Missouri, and the expiration on May 1, 1914, of the relief from the aggregate fare clause required the refiguring and republication of all local tariffs, inter-division tariffs and joint tariffs. This involved the checking of all combinations of interstate rates through all gateways where the roads interchange traffic; and, eventually, the rates for all such combinations will be shown in the tariffs. But it was impossible to complete all of this work in the time allowed and for a time it will be necessary for agents to figure some combinations; this until supplements are prepared for the rates left blank.

The readjustment was progressing rapidly and satisfactorily, when, in February, it was announced that in the case of South Dakota against the carriers, the federal court at Sioux City, decided that while the two-cents-a-mile fare established by the legislature was confiscatory, it had not been shown that the 2½

cent fare ordered by the railroad commission was confiscatory. The railways then by stipulation made the 2½ cent fare effective April 15. This meant that the work that had been proceeding for months in the readjustment of the interstate fares from, to and through South Dakota was worthless, and that it would be necessary to refigure not only the intrastate fares in South Dakota, but also the interstate fares which had previously been figured from, to and through the state. This situation had not only the effect of making it necessary to do a large portion of the work over again, but also seriously delayed the completion of the work of readjusting interstate fares to, from and through states which were only indirectly affected by the change in the rate per mile in South Dakota.

While the change in South Dakota naturally affects mainly the carriers in South Dakota, the change has a far-reaching effect on the local joint fares of lines that have no mileage in South Dakota, and it affects many fares which are not carried through South Dakota. To illustrate: the change in the rate per mile in South Dakota makes it necessary for the Northern Pacific to revise its fares from Minnesota to Montana and west thereof, to meet the competition of lines through South Dakota, although the Northern Pacific has no mileage in South Dakota, and its business does not go through that state. On a showing of this situation the Interstate Commerce Commission granted the roads 90 days additional time to complete the readjustment of fares from stations east of the Missouri river in Illinois, Wisconsin, northern peninsula of Michigan, Minnesota, South Dakota, North Dakota, Iowa and Missouri, to stations west of the river and vice versa.

No estimate is available of the number or amount of the reductions made by the revision. In a large number of states where fares are affected by the intrastate fares the through fares are placed on approximately a two-cent basis. In some cases roads that have met short line fares via circuitous routes have abandoned the unprofitable business and intermediate fares have been raised. The basing fare from St. Louis to Kansas City is reduced from $7 to $5.60; this reduces the fare from St. Louis to Los Angeles, for instance, from $57 to $55.60. The fare from St. Louis to Denver is reduced from $21.35 to $19.95, and from St. Louis to St. Paul from $12.16 to $11.57. The fare from Chicago to Kansas City is reduced from $10.75 to $10.15, and from Chicago to St. Paul from $8.15 to $8.05, while the fare from Chicago to Omaha is advanced from $10 to $10.11.

Summary of Revenues and Expenses of Steam Roads

The Bureau of Railway Economics' summary of revenues and expenses and comments thereon for January, 1914, are as follows:

Railways operating 225,510 miles of line are covered by this summary, or about 90 per cent. of all steam railway mileage in the United States. Their operating revenues for the month of January, 1914, amounted to $226,618,120. This amount includes revenues from freight and passenger traffic, from carrying mail and express, and from miscellaneous sources connected with rail operation. Compared with January, 1913, total operating revenues show a decrease of $16,457,067. Total operating revenues per mile of line averaged $1,005 in January, 1914, and $1,087 in January, 1913, a decrease of $82, or 7.5 per cent. There were decreases of 9.9 per cent. in freight revenue per mile and of 1.2 per cent. in passenger revenue per mile.

Operating expenses, which include all the costs of maintaining track and equipment, operating trains, securing traffic, and of administration, amounted to $175,067,091. This was $4,464,388 less than for January, 1913. These operating expenses per mile of line averaged $776 in January, 1914, and $803 in January, 1913, a decrease of $26 per mile, or 3.3 per cent.

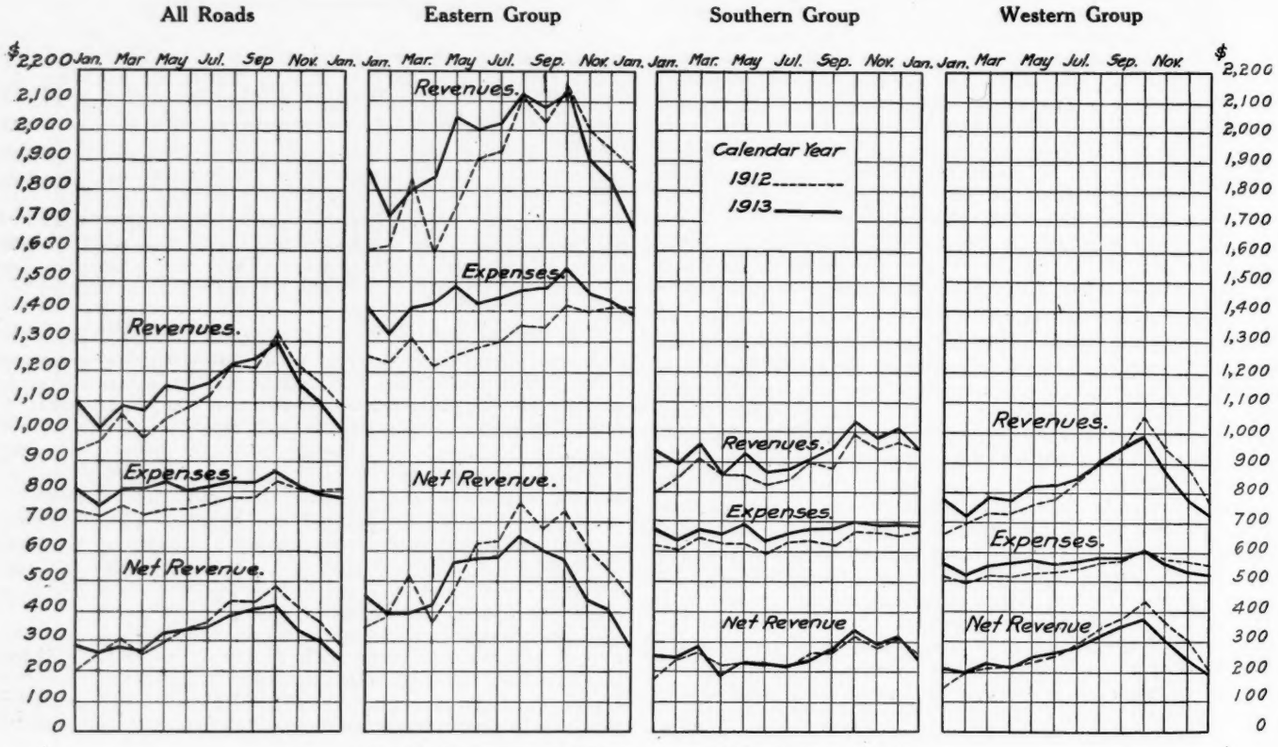
Net operating revenue, that is, total operating revenues less operating expenses, amounted to $51,551,029, which was $11,992,679 less than for January, 1913. Net operating revenue per mile of line averaged $229 in January, 1914, and $284 in January, 1913, a decrease of $56 per mile, or 19.5 per cent.

Taxes for the month of January amounted to $11,178,828, or $50 per mile, an increase of 10.2 per cent. over January, 1913.

Operating income, which is net revenue from rail and auxiliary operations, less taxes, averaged $177 per mile of line, and in January, 1913, $238, thus decreasing $61, or 25.6 per cent. Operating income for each mile of line for each day in January averaged $5.71, and for January, 1913, $7.61. Operating income is that proportion of their operating receipts which remains available to the railways for rentals, interest on bonds, appropriations for betterments, improvements, new construction, and for dividends.

The operating ratio for January, that is, the per cent. of total operating revenues absorbed in operating expenses, was 77.3 per cent., which is comparable with 73.9 per cent. in January, 1913, and 78.2 per cent. in January, 1912.

The railways of the eastern district show a decrease in total operating revenues per mile of line as compared with January,



Monthly Revenues and Expenses per Mile of Line in 1913

1913, of 11.2 per cent., the railways of the southern district a decrease of 0.4 per cent., and the railways of the western district a decrease of 6.0 per cent. Operating expenses per mile decreased 2.3 per cent. in the East, increased 2.0 per cent. in the South, and decreased 6.3 per cent. in the West. Net operating revenue per mile decreased 38.6 per cent. in the East, decreased 6.9 per cent. in the South, and decreased 5.2 per cent. in the West. Taxes per mile show an increase of 4.1 per cent. in the East, an increase of 10.7 per cent. in the South, and an increase of 16.7 per cent. in the West. Operating income per mile decreased 48.2 per cent. in the East, decreased 9.7 per cent. in the South, and decreased 9.7 per cent. in the West.

Comparison of returns for seven months of the current fiscal year with those of the corresponding months of the previous fiscal year reveals a decrease in total operating revenues per mile of 1.5 per cent., an increase in operating expenses per mile of 3.8 per cent., and a decrease in net operating revenue per mile of 12.0 per cent. This net operating revenue per mile decreased 19.3 per cent. in the East as compared with the corresponding period of the previous year, increased 1.2 per cent. in the South, and decreased 9.0 per cent. in the West.

The diagram shows the variations in operating revenues, operating expenses, and net operating revenue per mile for the separate months of the calendar year 1913 and of the calendar year 1914 to date.

The following table shows the per cent. of operating revenues consumed by each class of expenses:

PER CENT. OF TOTAL OPERATING REVENUES

	January		Calendar year ending December 31		One month ending January 31	
	1914.	1913.	1913.	1912.	1914.	1913.
Freight revenue	68.9	70.7	69.3	69.5	68.9	70.7
Passenger revenue	22.5	21.0	22.5	22.4	22.5	21.0
Other transportation	7.3	7.1	7.1	7.0	7.3	7.1
Non-transportation	1.3	1.2	1.1	1.1	1.3	1.2
Maintenance of way and structures	12.5	12.3	13.6	12.8	12.5	12.3
Maintenance of equipment	18.7	17.8	17.1	16.0	18.7	17.8
Traffic expenses	2.2	2.1	2.1	2.0	2.2	2.1
Transportation expenses	40.9	39.1	35.9	35.5	40.9	39.1
General expenses	3.0	2.6	2.5	2.4	3.0	2.6
Total operating expenses (excluding outside operations and taxes)	77.3	73.9	71:2	68.7	77.3	73.9

Extensive Reduction of Freight Rates in Canada

The Board of Railway Commissioners of Canada, in a decision handed down at Ottawa, April 7, has ordered extensive reductions in rates for transportation of freight to points in western Canada. The decision divides the territory west of the Great Lakes into three sections; the Prairie section, the Pacific section and the British Columbia Lake section, and a standard maximum scale of rates is fixed for each section.

The new tariffs are ordered to go into effect September 1, and the reductions vary, it is said, from 5 per cent. to 30 per cent. Reductions are also ordered in the rates on grain and flour, and in those on coal from the mines in Alberta.

Bulletin of Revenues and Expenses of Large Steam Roads in February

The following figures were compiled by the Interstate Commerce Commission from monthly reports of operating revenues and expenses of large steam roads for the month of February, 1914, on hand in the division of statistics, April 4, 1914. No reports are included for roads whose operating revenues for the year ended June 30, 1913, did not reach $1,000,000. The figures are compiled as rendered and should not be considered final, inasmuch as scrutiny of the reports may lead to their modification before acceptance.

Item	United States		Eastern District		Southern District		Western District	
	1914	1913	1914	1913	1914	1913	1914	1913
Number of reports included	162		61		35		66	
FOR THE MONTH OF FEBRUARY								
Average number of miles operated	201,161.09	199,621.64	45,975.80	45,904.83	41,655.31	41,418.01	113,529.98	112,298.80
Total operating revenues	$182,739,376	$203,170,060	$71,943,390	$83,582,906	$35,235,426	$37,158,909	$75,560,560	$82,428,245
Total operating expenses	146,941,132	150,892,609	63,311,927	64,633,123	26,581,684	26,624,178	57,047,521	59,635,308
Net operating revenue	35,798,244	52,277,451	8,631,463	18,949,783	8,653,742	10,534,731	18,513,039	22,792,937
Revenue per mile	908	1,017	1,565	1,821	846	897	665	734
Expenses per mile	730	755	1,377	1,408	638	643	502	531
Net revenue per mile	178	262	188	413	208	254	163	203
FOR THE EIGHT MONTHS ENDING WITH FEBRUARY								
Average number of miles operated	200,687.18	198,873.73	46,028.30	45,887.26	41,583.39	41,234.46	113,075.49	111,752.01
Total operating revenues	$1,834,033,709	$1,860,950,142	$745,382,209	$763,813,085	$312,930,052	$303,049,316	$775,721,448	$794,087,741
Total operating expenses	1,304,637,010	1,256,700,627	564,708,755	531,259,645	225,080,641	214,332,412	514,847,614	511,108,570
Net operating revenue	529,396,699	604,249,515	180,673,454	232,553,440	87,849,411	88,716,904	260,873,834	282,979,171
Revenues per mile	9,138	9,357	16,194	16,645	7,525	7,349	6,860	7,106
Expenses per mile	6,500	6,319	12,269	11,577	5,413	5,197	4,553	4,574
Net revenue per mile	2,638	3,038	3,925	5,068	2,112	2,152	2,307	2,532
COMPARATIVE FIGURES BASED ON ALL ROADS HAVING REVENUES ABOVE $1,000,000 PER ANNUM REPORTING FOR FEBRUARY, 1913								
For the Month—	1913	1912	1913	1912	1913	1912	1913	1912
Average number of miles operated	221,972.22	219,808.19	58,013.54	57,914.29	41,674.06	41,300.70	122,284.62	120,593.20
Revenues per mile	$1,015	$963	$1,718	$1,611	$892	$843	$723	$693
Expenses per mile	756	710	1,326	1,229	640	604	524	497
Net revenue per mile	259	253	392	382	252	239	199	196
For Eight Months—								
Average number of miles operated	221,411.96	219,210.26	57,995.96	57,784.51	41,614.31	41,192.57	121,801.69	120,233.18
Revenues per mile	$9,344	$8,479	$15,731	$14,201	$7,305	$6,803	$6,999	$6,303
Expenses per mile	6,313	5,785	10,945	9,864	5,168	4,784	4,498	4,167
Net revenue per mile	3,031	2,694	4,786	4,337	2,137	2,019	2,501	2,136

Pilfering by Passengers in Foreign Countries

Passengers on trains in European countries are no less human than railway passengers on this side of the ocean. A report has been going the rounds for some time that one English railway had to alter its electric car lighting system because of the theft of large quantities of lamps. In Germany, the Saxon State Railways Administration has had to remove all the thermometers placed in the cars in connection with the heating system and to abolish every fitting in the toilet rooms that could not be nailed or screwed down very tightly. It is said that one of the principal reasons for the latter action lay in the theft of no less than 7,900 towels in less than three months. One is not surprised to hear, therefore, that several of the state administrations are very chary about putting soap in the cars. They have devices similar to those used in America, which pour soap powder or drop a tablet into the palm of one's hand.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JANUARY, 1914

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance										
		Freight.	Passenger.	Total. inc. misc.	Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.					
Alabama & Vicksburg	142	$109,074	$41,520	$162,442	$26,688	$37,243	$4,146	$62,636	$6,530	$ 137,245	$95,197	—$317	$7,250	$17,629	—$10,761
Alabama Great Southern	309	309,350	100,844	446,010	49,627	112,425	13,814	152,270	10,024	338,163	107,846	—453	15,493	91,900	—14,632
Ann Arbor	291	95,412	37,868	145,719	12,689	24,338	5,131	65,216	6,939	114,314	31,405	20	13,600	17,825	—5,171
Arizona & New Mexico	108	72,587	9,115	84,396	11,489	10,186	824	17,424	2,768	42,694	41,701	.....	3,000	38,701	—7,510
Arizona Eastern	366	184,665	34,821	230,930	32,860	25,603	2,119	63,466	10,413	134,462	96,467	74	12,259	84,282	—20,767
Atchison, Topeka & Santa Fe	8,339	4,418,273	2,086,248	7,030,451	1,048,259	1,232,505	195,086	2,288,875	183,177	4,974,904	2,082,547	.....	388,862	1,693,684	—316,594
Atlanta & West Point	92	58,056	42,230	112,983	17,745	24,070	5,827	36,427	4,390	88,471	24,512	174	6,812	17,873	—1,159
Atlanta, Birmingham & Atlantic	645	208,654	56,232	288,592	51,624	48,215	16,122	126,470	10,713	253,145	35,446	.....	14,336	21,110	3,352
Atlantic & St. Lawrence	166	127,460	23,920	162,586	14,933	25,892	3,559	80,096	3,953	128,435	34,150	.....	10,157	23,993	28,639
Atlantic City	166	50,486	46,613	104,898	31,237	14,049	2,355	78,896	1,443	127,982	—23,083	—2,935	15,000	—41,019	—7,173
Atlantic Coast Line	4,629	2,072,879	875,022	3,205,585	431,781	498,237	67,743	1,152,722	109,179	2,259,665	945,920	—1,090	132,000	812,829	—192,046
Baltimore & Ohio	4,456	5,752,902	1,095,357	7,296,160	856,174	1,178,148	166,125	3,256,448	200,164	5,657,061	1,639,099	—88,042	290,121	1,260,935	—537,177
Baltimore & Ohio Chicago Terminal	77	.....	487	110,539	12,963	26,356	697	61,545	5,005	106,568	3,971	559	20,168	—15,637	—15,744
Bangor & Aroostook	630	259,679	39,282	315,647	49,232	33,095	2,511	126,779	9,275	220,893	94,753	—335	9,589	84,828	67,533
Belt Ry. Co. of Chicago	21	.....	.....	270,158	18,115	24,684	558	106,225	6,229	155,813	114,344	.....	9,513	104,831	41,640
Bessemer & Lake Erie	203	306,215	26,020	341,734	53,155	217,963	8,655	152,614	12,980	445,368	—103,634	.....	18,000	—121,634	—198,960
Bingham & Garfield	26	139,375	4,404	144,956	10,330	18,985	951	18,449	2,005	50,722	94,233	.....	2,954	91,279	41,625
Birmingham Southern	44	53,580	1,096	92,454	20,441	19,704	536	35,515	3,569	79,767	12,687	.....	1,693	10,993	—27,254
Boston & Maine	2,251	2,141,055	1,009,275	3,436,819	446,747	546,158	40,951	1,946,910	129,957	3,108,725	328,093	12,612	176,354	164,351	—140,444
Buffalo & Susquehanna	91	35,670	5,424	43,280	7,356	11,385	522	18,666	2,544	40,475	2,805	—6	1,600	1,198	20,814
Buffalo, Rochester & Pittsburgh	584	717,341	83,833	821,878	75,842	172,703	11,951	337,054	20,565	618,117	203,760	—346	18,000	185,414	—20,023
Butte, Anaconda & Pacific	90	111,828	9,022	130,855	10,107	18,472	613	44,243	3,185	76,623	54,232	.....	2,500	51,732	49,214
Canadian Pacific	233	124,936	29,185	166,818	25,726	26,837	7,385	82,362	5,206	147,519	19,299	.....	11,000	8,299	—12,950
Carolina, Clinchfield & Ohio	248	186,503	13,590	203,906	13,601	29,743	6,290	39,213	9,685	98,525	105,380	.....	14,250	91,130	—15,624
Central New England	303	239,788	32,861	288,932	45,808	39,706	1,222	147,833	3,126	237,697	51,234	—2,504	11,500	37,230	—50,509
Central of Georgia	1,924	757,409	313,891	1,184,673	180,578	217,765	35,767	443,487	40,271	917,869	266,804	6,225	54,955	218,074	37,142
Central R. R. of New Jersey	676	1,638,253	383,218	2,101,345	272,364	407,072	41,620	737,970	51,514	1,510,542	590,803	—28,288	122,612	439,901	—263,574
Central Vermont	411	195,005	63,250	279,259	38,844	52,108	7,513	181,207	11,745	291,419	—12,160	432	15,500	—27,228	—12,971
Charleston & Western Carolina	340	136,075	34,278	179,074	33,924	26,153	3,031	77,311	4,217	144,638	34,435	.....	5,000	29,435	8,595
Chesapeake & Ohio	2,346	2,591,787	441,500	3,161,826	307,983	725,820	53,605	1,133,924	77,253	2,298,586	863,240	—6,224	120,671	736,344	35,525
Chicago & Alton	1,025	677,836	323,565	1,102,222	122,998	302,408	45,721	485,050	39,479	995,657	106,564	—4,614	55,200	46,749	29,052
Chicago & Eastern Illinois	1,282	949,262	253,755	1,309,279	152,283	368,405	21,982	514,383	39,859	1,096,914	212,365	—2,373	55,500	154,491	—108,859
Chicago & Erie	269	345,322	48,996	440,461	86,587	119,698	22,845	259,843	13,135	502,110	—61,649	—5,014	16,034	—82,697	—82,541
Chicago & North Western	8,090	3,984,647	1,626,630	6,192,914	621,919	962,142	113,795	2,662,569	148,984	4,509,411	1,683,503	—2,225	353,000	1,328,277	—24,010
Chicago, Burlington & Quincy	9,128	4,666,929	1,664,025	7,011,261	576,539	1,184,236	122,023	2,555,559	216,075	4,654,434	2,356,827	—15,132	303,326	2,038,367	—474,397
Chicago Great Western	1,496	795,725	251,012	1,136,904	130,010	183,544	49,523	467,707	37,079	867,866	269,038	—1,286	38,650	229,101	9,970
Chicago, Indiana & Southern	358	320,371	24,319	355,593	46,221	118,050	14,725	135,023	9,839	323,861	31,731	—115	18,645	12,971	—63,394
Chicago, Indianapolis & Louisville	616	349,541	124,587	523,709	77,576	90,027	17,102	219,528	15,785	420,020	103,688	.....	24,314	79,374	10,879
Chicago Junction	11	.....	.....	154,722	12,914	17,097	877	87,518	4,037	122,446	32,276	.....	2,475	29,800	—7,121
Chicago, Milwaukee & St. Paul	9,690	4,974,517	1,297,453	6,912,067	575,729	1,045,112	133,017	2,791,875	149,677	4,695,412	3,216,654	—2,106	332,245	1,882,302	147,361
Chicago, Peoria & St. Louis	255	106,061	23,310	137,634	24,832	35,634	6,059	73,552	5,650	145,729	8,095	.....	4,800	—12,895	—27,684
Chicago, Rock Island & Gulf	476	184,072	57,458	259,501	27,640	25,625	9,496	104,986	8,396	176,145	83,356	—658	8,814	73,884	—21,842
Chicago, Rock Island & Pacific	7,636	3,514,005	1,431,437	5,314,885	617,565	641,928	146,696	2,377,643	172,517	3,956,351	1,358,533	—11,863	259,043	1,087,626	517,684
Chicago, St. Paul, Minneapolis & Omaha	1,746	978,971	414,918	1,472,966	109,740	196,603	31,365	570,214	40,589	948,512	524,453	—360	87,326	436,767	145,330
Chicago, Terre Haute & Southeastern	361	157,054	15,636	176,866	21,618	45,172	3,536	61,677	8,710	140,714	36,151	—202	11,500	24,449	—8,623
Cincinnati, Hamilton & Dayton	1,014	514,975	117,494	704,513	151,262	158,356	18,611	402,636	22,018	752,886	—48,373	.....	33,990	—82,363	109,507
Cincinnati, New Orleans & Texas Pacific	337	675,879	183,952	902,510	81,531	233,413	26,162	285,474	22,435	649,018	253,492	—2,921	31,000	219,750	—74,786
Cincinnati Northern	245	85,714	16,201	106,540	37,863	29,722	2,503	57,307	3,751	131,148	—24,608	.....	6,000	—30,608	11,703
Cleveland, Cincinnati, Chic. & St. Louis	2,360	1,780,946	690,755	2,709,338	526,470	738,026	71,362	1,340,395	75,823	2,752,078	—42,739	—1,568	124,500	—168,808	—578,223
Colorado & Southern	1,126	489,429	93,006	627,991	67,340	86,673	8,741	290,858	21,092	474,705	153,285	—169	32,728	120,387	—77,150
Colorado Midland	337	101,500	17,411	138,630	16,965	36,661	6,882	63,832	5,661	130,003	8,626	—648	8,000	—21	2,187
Cumberland Valley	162	207,018	51,005	271,489	40,975	35,355	5,616	108,260	7,948	198,156	73,333	18	5,910	67,440	—9,307
Delaware & Hudson	880	1,509,454	190,502	1,767,754	137,494	324,475	25,835	741,649	72,950	1,302,387	465,367	—642	55,950	410,060	—362,933
Delaware, Lackawanna & Western	959	1,976,287	611,972	2,808,914	245,128	517,930	71,095	1,056,145	72,681	1,962,981	845,932	8,202	185,000	669,135	—516,748
Denver & Rio Grande	2,585	1,247,927	299,362	1,624,000	154,055	344,480	40,896	603,225	57,259	1,199,918	424,082	—7,308	90,000	326,774	—44,328
Denver & Salt Lake	255	57,537	14,636	76,901	16,149	16,170	1,829	32,053	4,330	70,533	6,367	.....	4,000	2,367	3,671
Detroit & Mackinac	411	50,864	22,689	79,852	8,124	16,237	2,079	36,277	3,192	65,909	13,942	—124	8.414	5,403	1,648
Detroit & Toledo Shore Line	78	157,141	.....	160,991	9,370	24,919	2,209	43,213	2,492	82,205	78,785	.....	5,900	72,885	7,001
Detroit, Grand Haven & Milwaukee	190	120,000	45,000	190,162	17,925	34,968	5,926	133,558	4,252	196,632	—6,470	47	3,600	—10,023	20,191
Detroit, Toledo & Ironton	441	93,282	9,368	113,304	23,295	29,448	2,316	79,108	3,342	137,511	—24,207	.....	5,700	—29,907	—4,415
Duluth & Iron Range	291	79,034	23,800	114,895	34,640	47,699	1,621	75,493	10,136	169,591	—54,695	—11,348	5,646	—71,690	2,924

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JANUARY, 1914—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total. inc. misc.	Maintenance: Way and structures.	Maintenance: Of equipment.	Traffic.	Transportation.	General.	Total.					
Duluth, Missabe & Northern	363	$58,161	$25,925	$88,453	$62,958	$83,660	$3,109	$67,109	$10,571	$227,409	—$138,956	—$1,342	$4,563	—$144,861	—$40,485
Duluth, South Shore & Atlantic	627	162,770	69,978	248,348	34,051	33,112	7,640	105,362	10,112	190,270	58,069	46	19,600	38,515	7,672
Duluth, Winnipeg & Pacific	181	110,580	25,130	137,412	13,863	40,102	2,817	57,187	5,395	119,366	18,046	.....	6,870	11,175	—27,516
El Paso & Southwestern	982	653,751	111,850	807,007	81,264	109,346	17,766	241,752	24,592	474,723	332,284	—4,149	38,210	289,924	69,728
Elgin, Joliet & Eastern	804	717,944	16	778,128	103,042	196,402	5,257	262,721	17,719	585,143	192,984	.....	27,300	165,684	—256,813
Erie	1,987	2,829,415	633,995	3,800,304	383,868	865,599	85,558	1,666,862	105,879	3,107,769	692,534	—29,664	164,864	498,005	—585,167
Florence & Cripple Creek	86	97,835	11,145	110,470	9,815	10,722	2,117	36,519	4,768	63,943	46,527	.....	8,682	37,844	30,121
Florida East Coast	695	232,256	231,273	528,065	65,674	72,254	16,185	191,002	10,370	355,486	172,578	—356	20,000	152,222	1,430
Fort Worth & Denver City	454	293,848	108,341	425,617	36,255	47,492	6,682	183,627	16,502	290,560	135,075	—298	13,300	121,459	35,154
Galveston, Harrisburg & San Antonio	1,338	648,027	295,950	1,001,652	153,216	190,866	34,846	457,363	35,659	871,951	129,701	—4,648	40,297	84,754	3,564
Georgia R. R. Lessee Organization	307	190,516	74,950	289,110	19,326	57,982	11,093	119,672	8,538	216,612	72,497	.....	2,818	69,679	58,932
Georgia Southern & Florida	395	119,236	79,712	226,294	30,812	43,059	8,325	96,170	9,818	188,185	38,108	.....	11,112	26,996	—10,647
Grand Rapids & Indiana	575	269,817	116,788	415,620	59,686	69,951	10,977	216,729	15,926	373,271	42,348	—751	24,221	17,375	—22,514
Grand Trunk Western	347	359,000	160,000	555,052	47,367	114,507	18,043	271,361	19,907	471,187	83,864	—1,342	31,500	51,022	—34,311
Great Northern	7,805	2,876,127	970,084	4,243,530	480,023	791,040	107,999	1,510,333	122,295	3,011,692	1,231,837	—5,714	283,836	942,286	—151,307
Gulf & Ship Island	307	129,575	30,767	170,177	24,040	36,426	2,929	48,564	9,209	121,171	49,005	.....	10,400	38,604	—35,570
Gulf, Colorado & Santa Fe	1,595	868,667	232,142	1,154,796	205,689	169,331	26,006	436,281	33,044	870,353	284,442	.....	44,079	240,363	82,282
Hocking Valley	351	357,813	68,514	455,130	37,469	141,538	8,792	188,065	14,595	390,462	64,667	.....	38,400	26,267	—82,160
Houston & Texas Central	789	414,290	124,718	582,322	107,206	78,913	15,580	279,653	21,725	503,080	79,242	—442	27,612	51,187	25,629
Houston East & West Texas	190	83,356	31,553	121,115	15,921	10,690	1,964	54,912	4,464	87,952	33,162	.....	4,302	28,859	29,278
Illinois Central	4,762	3,612,530	1,156,876	5,443,091	635,628	1,140,007	117,860	2,106,641	146,322	4,146,459	1,296,631	376	270,664	1,026,342	162,407
Indiana Harbor Belt	104	.....	.....	237,410	32,265	36,501	2,995	124,435	7,490	203,688	33,722	1,151	6,000	28,873	52,236
International & Great Northern	1,159	661,684	175,136	896,674	166,347	132,780	27,351	418,493	35,260	780,233	116,441	—2,254	35,000	79,186	—4,025
Kanawha & Michigan	176	181,218	27,725	215,416	23,361	61,597	2,743	80,101	7,063	174,868	40,548	—15	11,043	29,489	—60,013
Kansas City Southern	827	700,332	138,919	929,329	91,636	104,792	25,581	319,903	38,984	580,899	348,430	.....	46,791	301,639	—6,239
Lake Erie & Western	905	342,749	63,771	433,805	61,243	87,261	10,536	204,914	12,972	376,927	56,877	.....	20,000	36,877	—25,312
Lake Shore & Michigan Southern	1,852	2,472,820	995,525	3,974,395	499,728	1,005,314	82,875	1,629,799	104,129	3,321,848	652,547	—5,774	193,500	453,273	—1,003,217
Lehigh & Hudson River	96	123,003	3,622	132,929	11,175	22,937	1,332	64,226	3,738	103,410	29,519	.....	4,000	25,519	—24,465
Lehigh & New England	285	166,377	1,171	176,192	15,946	27,046	1,453	54,222	4,175	102,845	73,347	.....	3,456	69,891	11,194
Lehigh Valley	1,440	2,308,601	300,041	2,721,286	308,967	574,671	85,813	1,154,196	81,472	2,205,121	516,165	—29,896	132,000	354,268	—416,824
Long Island	398	240,879	458,033	782,777	121,075	121,582	12,593	420,499	29,478	705,229	77,547	—4,124	65,514	7,909	14,247
Louisiana & Arkansas	278	120,885	22,643	147,667	30,893	20,337	2,433	37,718	4,561	95,944	51,723	.....	6,650	45,073	—9,406
Louisiana Ry. & Navigation Co	350	140,942	22,789	176,069	28,467	18,768	5,601	67,987	7,617	128,442	47,626	.....	7,250	40,376	16,043
Louisiana Western R. R.	207	142,633	66,130	218,018	17,102	46,865	7,807	62,211	7,014	141,001	77,016	—535	9,535	66,945	24,526
Louisville & Nashville	4,923	3,583,950	1,071,058	4,979,871	767,726	1,088,873	123,594	1,795,624	111,547	3,887,365	1,092,506	1,601	193,438	900,669	—283,142
Louisville, Henderson & St. Louis	199	71,021	32,203	110,545	20,330	15,379	5,345	40,118	2,907	84,080	26,464	241	3,600	23,105	18,691
Maine Central	1,206	649,182	202,479	904,947	104,197	140,130	10,323	398,425	27,431	680,507	224,440	—6,343	52,129	165,968	8,156
Michigan Central	1,799	1,652,339	661,342	2,544,141	329,455	474,778	59,413	1,325,225	61,973	2,250,846	293,295	—3,557	134,000	155,738	—431,882
Midland Valley	373	79,805	42,033	130,724	30,019	20,467	2,309	54,420	6,011	113,227	17,496	3	6,543	10,956	8,177
Minneapolis & St. Louis	1,585	618,689	141,642	810,128	95,849	99,033	16,844	331,635	19,407	562,768	247,360	—28	33,284	214,047	2,211
Minneapolis, St. Paul & Sault Ste. Marie	3,979	1,354,706	544,609	2,049,326	197,004	325,516	57,870	772,387	55,967	1,408,745	640,580	5,385	84,194	561,771	—170,443
Missouri & North Arkansas	365	65,891	33,408	107,298	34,620	21,658	3,981	50,939	6,086	117,285	—9,987	.....	5,500	—15,487	—8,680
Missouri, Kansas & Texas	3,816	1,885,007	737,963	2,815,833	371,780	322,712	62,183	1,135,772	106,234	1,998,683	817,149	—8,926	121,909	686,313	99,695
Missouri, Oklahoma & Gulf	332	88,700	19,631	112,450	30,090	21,597	5,282	54,574	6,051	117,596	—5,146	428	6,000	—10,718	—19,729
Missouri Pacific	3,919	1,392,643	373,265	1,958,131	318,384	356,813	49,524	913,454	62,534	1,700,710	257,420	—3,685	101,373	152,362	—97,678
Mobile & Ohio	1,122	855,737	126,920	1,045,798	121,680	224,949	43,398	430,578	35,948	856,554	189,243	1,080	33,309	154,853	—96,870
Monongahela	66	93,688	2,546	98,041	12,747	5,467	425	23,487	2,043	44,171	53,870	.....	2,350	51,520	—44,940
Monongahela Connecting	6	.....	.....	72,189	5,850	12,291	300	35,001	2,454	55,898	16,290	.....	2,214	14,076	1,819
Morgan's Louisiana & Texas	404	277,867	100,860	423,787	57,632	54,467	12,474	168,964	14,137	307,676	116,110	—2,078	23,611	90,420	99,466
Nashville, Chattanooga & St. Louis	1,231	753,262	251,422	1,101,252	174,870	215,418	44,595	420,895	36,865	892,645	208,606	46	25,340	183,313	—22,017
Nevada Northern	165	132,906	10,847	147,431	14,766	20,762	525	37,203	5,054	78,312	69,119	.....	7,200	61,919	4,671
New Orleans & Northeastern	203	243,219	50,691	318,796	34,960	83,375	10,452	130,852	14,457	274,099	44,697	—969	14,300	29,427	—48,468
New Orleans Great Northern	282	112,447	29,877	154,697	21,942	16,921	2,716	47,613	7,375	96,567	58,129	—95	2,666	55,367	—11,298
New Orleans, Mobile & Chicago	402	149,888	29,651	188,310	27,855	20,824	3,697	61,772	8,266	122,415	65,894	—85	7,199	58,609	38,218
New Orleans, Texas & Mexico	285	116,689	18,876	147,035	42,486	6,466	3,522	60,305	8,632	121,414	25,620	.....	275	25,344	—5,074
New York Central & Hudson River	3,756	4,980,332	2,457,101	8,359,224	1,037,811	1,860,839	143,803	3,658,460	257,522	6,958,436	1,400,787	—15,673	490,468	894,646	—774,414
New York, Chicago & St. Louis	566	822,374	115,505	968,046	113,879	193,042	48,594	545,901	21,517	922,934	45,112	—3,173	35,000	6,938	—223,879
New York, New Haven & Hartford	2,059	2,344,823	2,041,683	4,867,113	635,279	943,694	39,292	2,353,295	163,380	4,134,942	732,171	5,666	290,000	447,837	—352,200
New York, Ontario & Western	565	541,497	73,324	641,707	70,605	133,627	9,659	304,457	16,768	535,118	106,588	—6,403	18,500	81,685	—71,323
New York, Philadelphia & Norfolk	112	206,130	38,641	268,771	28,467	56,453	4,055	143,513	14,801	247,290	21,480	.....	8,700	12,780	—25,524
New York, Susquehanna & Western	140	184,925	39,386	256,580	24,833	30,764	1,581	111,395	6,545	175,120	81,459	—4,035	14,083	63,340	3,484
Norfolk & Western	2,036	2,901,916	373,770	3,404,601	324,591	734,351	61,842	1,176,075	78,294	2,375,156	1,029,445	—158	140,000	889,287	—457,846

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JANUARY, 1914—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance										
		Freight.	Passenger.	Total. inc. misc.	Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.					
Norfolk Southern	860	$245,761	$76,129	$349,246	$37,935	$48,414	$6,397	$125,603	$19,524	$237,854	$111,371	$611	$10,796	$101,186	$7,934
Northern Central	472	731,450	179,385	991,864	142,900	243,274	17,239	580,076	25,054	1,008,544	—16,680	271	36,719	—53,129	—61,346
Northern Pacific	6,314	3,072,459	1,049,962	4,452,915	459,784	651,564	97,085	1,747,414	103,047	3,058,896	1,394,018	15,278	486,325	922,471	—502,700
Northwestern Pacific	400	71,977	103,664	199,544	53,832	41,007	3,463	104,656	11,640	214,598	—15,053	.....	15,100	—30,153	—26,952
Oregon Short Line	2,119	1,027,835	318,547	1,475,507	176,604	247,163	28,312	472,934	59,412	984,427	491,080	—5,425	105,000	380,654	—190,057
Oregon-Washington R. R. & Navigation Co.	1,914	758,736	315,119	1,186,868	138,542	171,702	39,431	488,770	60,422	898,868	287,999	—2,186	111,070	174,743	69,658
Pecos & Northern Texas	481	143,985	35,680	190,971	17,312	31,679	3,034	63,169	7,560	122,757	68,214	.....	7,455	60,759	23,704
Pennsylvania *Co.*	1,749	2,898,704	799,412	4,140,672	553,018	798,852	75,099	1,802,462	141,491	3,370,924	769,747	—9,934	258,904	500,908	—249,744
Pennsylvania *R. R.*	4,043	9,647,612	2,831,613	13,589,688	1,954,968	3,000,856	197,551	5,775,259	381,835	11,310,470	2,279,217	—167,840	586,203	1,525,172	—817,752
*Peoria & Eastern	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pere Marquette	2,324	851,279	284,746	1,261,603	167,791	384,168	35,013	617,837	40,371	1,245,182	16,420	—1,681	52,941	—38,202	—223,502
Philadelphia & Reading	1,020	2,995,161	533,742	3,698,418	326,005	678,959	35,191	1,426,821	71,407	2,538,385	1,160,032	29,106	102,142	1,086,997	—614,324
Philadelphia, Baltimore & Washington	717	717,087	649,934	1,567,643	257,930	309,969	31,687	777,677	43,092	1,420,357	147,285	.....	52,993	94,292	—72,352
Pittsburgh & Lake Erie	224	942,955	131,550	1,119,014	131,753	307,857	12,316	363,609	31,524	847,061	271,952	—1,437	53,500	217,015	—487,430
Pittsburgh, Cincinnati, Chic. & St. Louis	1,472	2,164,473	713,420	3,282,978	371,124	606,467	68,733	1,365,808	80,943	2,493,077	789,900	358	145,844	644,414	—43,584
Pittsburgh, Shawmut & Northern	282	200,668	9,610	212,860	30,414	53,109	1,661	76,209	4,540	165,936	46,923	.....	1,850	45,073	5,962
Port Reading	21	111,815	.....	115,440	10,420	104	38	50,375	798	61,737	53,703	5,359	19,000	40,062	—58,063
Richmond, Fredericksburg & Potomac	87	117,607	93,803	244,007	22,659	28,368	2,922	98,061	7,640	159,653	84,353	—202	8,000	76,151	—25,800
Rutland R. R.	468	145,109	79,342	261,399	30,892	51,445	7,057	123,792	5,819	219,007	42,392	—89	17,615	24,687	4,723
St. Joseph & Grand Island	318	85,199	27,174	124,544	17,488	22,116	4,808	56,483	5,903	106,800	17,743	.....	7,117	10,625	17,133
St. Louis & San Francisco	4,741	2,387,490	879,916	3,487,624	715,580	691,120	74,107	1,249,159	122,597	2,852,565	635,059	.....	116,391	518,668	—578,286
St. Louis, Brownsville & Mexico	517	158,948	70,240	246,259	64,819	26,299	5,605	93,779	11,106	201,610	44,649	.....	7,000	37,649	9,637
St. Louis, Iron Mountain & Southern	3,365	2,163,876	547,784	2,916,689	347,420	374,275	60,530	859,915	81,636	1,723,778	1,192,910	—235	127,713	1,064,962	102,600
St. Louis Merchants' Bridge Terminal	9	.....	271	162,624	23,723	9,699	782	88,138	6,703	129,046	33,577	.....	6,250	27,327	—4,421
St. Louis, San Francisco & Texas	243	103,786	30,092	141,681	29,580	26,919	2,208	69,260	6,295	134,264	7,416	.....	1,327	6,089	—30,880
St. Louis Southwestern	942	578,618	127,666	752,308	77,471	124,302	32,343	196,851	32,502	463,471	288,836	—1,109	40,119	247,607	—62,860
St. Louis Southwestern Ry. Co. of Texas	810	292,479	94,105	414,307	105,221	92,859	14,830	184,346	25,684	422,942	—8,634	—234	15,500	—24,369	—1,870
San Antonio & Aransas Pass	724	259,943	101,541	385,237	90,022	49,241	6,689	165,478	12,606	324,037	61,199	.....	18,000	43,199	11,796
San Pedro, Los Angeles & Salt Lake	1,133	547,794	224,183	832,679	80,681	150,852	30,823	299,157	18,137	579,652	253,027	—4,461	45,629	202,936	—3,042
Seaboard Air Line	3,081	1,466,051	471,248	2,172,933	258,523	281,774	72,730	842,360	64,216	1,519,605	653,328	—2,440	82,000	568,887	—18,640
Southern Kansas Ry. Co. of Texas	179	70,845	14,224	89,222	7,892	19,769	1,786	32,682	3,197	65,328	23,893	.....	3,698	20,195	—6,163
Southern Pacific	6,437	3,757,773	2,160,932	6,438,333	948,772	1,056,168	162,951	2,192,040	234,809	4,594,742	1,843,591	34,871	467,394	1,411,068	—526,425
Southern Railway	7,036	3,599,761	1,542,382	5,634,740	737,104	1,063,360	192,300	2,174,463	186,544	4,353,772	1,280,967	—2,848	218,340	1,059,778	—75,354
Southern Ry. Co. in Mississippi	280	78,507	45,611	135,524	22,539	9,626	2,495	51,897	4,238	90,798	44,725	.....	7,750	36,975	38,019
Spokane International	163	51,693	14,177	68,478	7,895	6,093	1,958	25,824	3,648	45,420	23,057	.....	3,081	19,976	—9,050
Spokane, Portland & Seattle	556	192,898	95,304	310,442	60,810	42,236	7,681	100,257	14,271	225,257	85,185	—1,092	53,400	30,693	—172,907
Tennessee Central	293	91,951	30,656	131,379	24,481	20,805	5,674	51,033	7,788	109,784	21,594	.....	4,245	17,348	—6,533
Terminal R. R. Association of St. Louis	33	.....	192	225,761	25,695	18,316	988	95,760	7,207	147,968	77,792	12,922	27,100	63,615	—1,776
Texas & New Orleans	458	240,693	100,106	362,790	78,994	74,407	9,821	157,171	13,503	333,898	28,891	278	18,206	10,963	21,764
Texas & Pacific	1,884	1,177,847	370,239	1,657,732	155,653	246,758	42,326	779,080	46,659	1,270,477	387,255	—5,453	62,000	319,802	96,409
Toledo & Ohio Central	442	311,132	50,908	378,780	61,156	90,789	6,897	191,200	12,450	362,493	16,286	—460	20,340	—4,514	—54,711
Toledo, Peoria & Western	247	48,509	39,106	93,919	16,235	27,572	2,667	49,668	3,799	99,944	—6,024	.....	6,800	—12,824	—28,457
Toledo, St. Louis & Western	450	318,591	24,541	367,330	34,400	44,449	17,339	157,222	8,807	262,219	105,110	.....	17,500	87,610	—48,162
Trinity & Brazos Valley	462	188,698	39,825	237,513	55,254	24,313	9,916	116,576	13,729	219,789	17,723	.....	4,900	12,823	30,655
Ulster & Delaware	128	36,215	12,205	52,153	7,448	11,785	1,141	31,994	4,847	57,218	—5,064	144	3,500	—8,420	—4,982
Union R. R. of Pennsylvania	31	.....	.....	196,355	36,820	95,406	100	148,494	2,795	283,618	—87,262	5,718	7,000	—88,543	—108,784
Union R. R. of Baltimore	9	95,500	20,681	115,086	15,483	.....	.....	5,018	2,721	23,224	94,862	.....	5,930	88,932	—46,363
Union Pacific	3,615	2,444,875	750,502	3,610,182	285,320	590,265	97,225	1,160,739	131,758	2,265,308	1,344,873	—18,089	179,137	1,147,646	94,437
Vandalia	910	600,559	198,268	903,095	107,001	178,067	24,507	398,547	22,174	730,299	172,795	.....	32,184	140,611	—30,693
Vicksburg, Shreveport & Pacific	171	99,097	47,889	161,511	24,461	29,884	3,856	56,472	5,370	120,045	41,465	—260	7,200	34,004	14,202
Virginia & Southwestern	240	160,622	13,649	179,160	24,708	44,265	2,077	51,223	3,796	126,071	53,089	.....	6,890	46,198	5,785
Virginian Railway	503	515,445	27,353	557,338	69,682	84,291	5,268	132,764	10,997	303,003	254,334	6,245	22,650	237,929	—29,532
Wabash	2,514	1,545,345	523,760	2,288,506	269,968	494,619	80,547	1,106,798	74,132	2,026,065	262,440	—4,090	99,191	159,158	—156,022
Washington Southern	35	35,141	46,051	103,344	13,048	16,620	1,140	43,908	2,927	77,644	25,700	—122	3,500	22,077	—6,129
West Jersey & Seashore	355	123,365	187,749	338,095	77,829	72,485	13,836	225,491	13,531	403,174	—65,079	—3,526	26,954	—95,559	27,937
Western Maryland	661	575,392	60,443	663,353	93,163	123,382	20,977	328,864	21,746	612,134	51,218	.....	25,600	25,618	—100,839
Western Pacific	936	280,526	27,832	318,333	103,466	82,963	27,807	167,698	23,103	405,039	—86,705	—2,819	34,779	—124,304	—121,415
Western Ry. of Alabama	133	72,752	48,968	131,372	25,215	24,898	6,531	41,354	5,727	103,727	27,645	128	5,007	22,765	—12,796
Wheeling & Lake Erie	459	439,680	45,522	524,567	38,551	88,849	8,849	221,304	18,360	375,914	148,652	—82	28,994	119,575	15,460
Yazoo & Mississippi Valley	1,371	828,798	291,119	1,197,045	140,760	135,042	15,980	436,799	29,305	757,888	439,157	276	43,000	396,433	228,569

*Included with the Big Four since January 1.

REVENUES AND EXPENSES OF RAILWAYS

SEVEN MONTHS ENDING JANUARY 31, 1914

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations. net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance										
		Freight.	Passenger.	Total. inc. misc.	Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.					
Alabama & Vicksburg	142	$739,709	$315,496	$1,136,489	$171,954	$254,240	$22,221	$396,689	$41,120	$872,227	$264,261	—$3,063	$61,592	$199,605	—$61,397
Alabama Great Southern	309	2,204,133	814,060	3,277,135	389,424	802,723	95,076	1,073,885	69,554	2,430,663	846,471	—2,787	111,694	731,989	—97,468
Ann Arbor	291	861,404	351,783	1,303,031	150,471	178,004	35,210	466,681	47,109	877,477	425,554	—213	95,200	330,140	21,107
Arizona & New Mexico	108	481,411	64,949	572,197	81,511	64,691	5,579	113,102	21,691	286,576	285,620	.....	18,383	267,237	—69,193
Arizona Eastern	366	1,250,845	272,311	1,605,144	190,895	217,832	14,396	447,426	75,100	945,651	659,492	—113	99,358	560,021	—180,655
Atchison, Topeka & Santa Fe	8,350	36,282,497	14,864,980	55,439,871	7,890,261	9,802,805	1,257,257	15,909,694	1,301,696	36,161,715	19,278,156	.....	2,744,398	16,533,757	—1,316,979
Atlanta & West Point	92	388,359	302,568	773,396	109,972	157,245	36,244	238,739	33,005	575,207	198,189	1,713	47,286	152,616	—11,924
Atlanta, Birmingham & Atlantic	645	1,511,712	437,425	2,120,577	349,310	338,423	100,013	817,628	77,629	1,683,004	437,573	.....	100,357	337,215	67,083
Atlantic & St. Lawrence	166	636,364	226,270	939,338	167,290	151,020	30,624	450,656	29,411	829,003	110,335	.....	71,099	39,236	35,060
Atlantic City	166	452,845	999,692	1,535,941	276,563	83,178	21,422	745,978	10,558	1,137,701	398,240	—24,272	69,000	304,967	41,632
Atlantic Coast Line	4,621	13,835,468	5,260,367	20,659,423	2,938,962	3,419,686	357,715	7,363,469	701,496	14,799,331	5,860,091	—4,351	924,000	4,931,740	—364,830
Baltimore & Ohio	4,456	46,532,760	10,004,688	59,950,124	7,711,809	9,991,882	1,342,518	23,319,552	1,358,480	43,724,244	16,225,880	—550,524	1,918,313	13,757,043	—2,227,429
Baltimore & Ohio Chicago Terminal	77	.....	4,955	1,020,944	131,826	160,460	4,936	466,493	35,985	799,702	221,241	5,587	124,771	102,117	—7,548
Bangor & Aroostook	630	1,565,156	428,298	2,097,964	285,647	300,104	17,982	714,682	70,966	1,389,383	708,581	1,241	69,210	638,129	131,071
Belt Ry. Co. of Chicago	21	.....	.....	1,774,476	188,457	182,459	3,897	718,063	45,143	1,138,021	636,455	.....	67,720	568,734	—64,016
Bessemer & Lake Erie	203	5,273,858	272,159	5,629,322	519,266	1,372,802	75,415	1,412,306	102,164	3,481,954	2,147,368	.....	246,000	1,901,368	—560,612
Bingham & Garfield	26	990,629	31,002	1,027,009	68,056	136,950	6,591	149,904	16,495	377,998	649,011	.....	20,876	628,134	289,010
Birmingham & Southern	43	435,658	7,259	727,963	118,557	95,171	3,616	247,372	31,513	496,231	231,732	.....	16,568	215,164	—29,382
Boston & Maine	2,251	16,608,678	10,033,733	28,856,967	4,257,791	4,438,825	259,007	13,170,933	764,417	22,890,974	5,965,992	121,717	1,208,224	4,879,485	—982,276
Buffalo & Susquehanna	91	251,188	69,333	340,235	78,026	170,790	3,985	147,954	21,130	421,887	—81,651	—9	11,200	—92,860	—13,255
Buffalo, Rochester & Pittsburgh	578	5,945,396	752,242	6,921,630	883,518	1,340,090	90,657	2,397,378	142,230	4,853,875	2,067,754	—874	126,000	1,940,880	101,686
Butte, Anaconda & Pacific	90	711,917	95,121	880,324	112,011	143,347	4,705	320,078	23,142	603,286	277,037	.....	18,255	258,782	157,776
Canadian Pacific	233	496,638	194,910	756,456	246,901	122,494	47,394	355,580	36,787	809,157	—52,701	.....	77,000	129,701	—69,122
Carolina, Clinchfield & Ohio	248	1,436,600	130,843	1,598,407	109,933	191,511	47,762	286,515	62,405	698,128	900,278	.....	69,750	830,528	38,197
Central New England	295	1,849,672	282,352	2,241,074	319,852	261,913	9,435	750,839	29,739	1,371,780	869,294	—3,313	74,500	791,480	—214,642
Central of Georgia	1,924	5,641,537	2,401,195	8,781,965	1,163,296	1,744,302	245,466	2,920,327	279,849	6,353,242	2,428,722	45,759	369,898	2,104,583	—3,198
Central R. R. of New Jersey	676	12,283,237	3,508,987	16,380,803	1,888,384	2,697,236	239,458	5,113,573	318,085	10,256,738	6,124,065	63,951	774,888	5,413,127	—1,557,335
Central Vermont	411	1,583,935	674,131	2,435,228	424,995	462,035	63,569	1,236,575	61,534	2,248,709	186,518	3,233	108,500	81,251	—246,203
Charleston & Western Carolina	340	945,498	249,374	1,250,645	228,458	195,683	23,538	469,954	32,976	950,610	300,034	.....	35,000	265,034	50,130
Chesapeake & Ohio	2,342	16,982,917	3,785,591	21,773,960	2,398,899	4,504,694	393,166	7,047,060	529,594	14,873,415	6,900,544	668	783,781	6,117,431	96,906
Chicago & Alton	1,025	5,705,425	2,635,803	9,020,027	1,113,154	2,209,383	309,742	3,474,261	257,347	7,363,890	1,656,137	—22,371	297,500	1,336,265	—371,591
Chicago & Eastern Illinois	1,283	7,136,249	1,845,291	9,760,120	1,636,609	2,499,128	166,057	3,580,798	275,602	8,158,195	1,601,924	—19,731	346,000	1,236,193	—929,389
Chicago & Erie	269	2,500,200	435,043	3,240,730	691,215	799,792	151,666	1,704,291	90,694	3,437,660	—196,929	—30,966	105,950	—333,846	—397,561
Chicago & North Western	8,052	33,078,230	13,450,040	51,222,851	7,162,783	7,301,985	811,245	19,071,839	1,014,601	35,362,455	15,860,396	1,850	2,339,000	13,523,246	—627,778
Chicago, Burlington & Quincy	9,128	39,119,850	13,919,851	58,075,345	6,442,494	9,477,271	958,484	18,275,165	1,357,643	36,511,060	21,564,285	96,755	2,123,321	19,344,209	—1,486,124
Chicago Great Western	1,496	5,975,770	2,040,288	8,670,488	1,337,196	1,339,697	334,871	3,191,684	253,019	6,456,469	2,214,018	—3,737	270,888	1,939,392	—244,784
Chicago, Indiana & Southern	358	2,336,335	200,755	2,620,616	403,714	838,668	61,452	926,540	72,034	2,302,410	318,206	2,562	113,111	207,657	—335,482
Chicago, Indianapolis & Louisville	616	2,800,338	1,044,637	4,208,104	616,281	625,232	137,264	1,549,820	110,866	3,039,464	1,168,639	.....	178,655	989,984	—110,420
Chicago Junction	11	.....	.....	1,235,145	132,333	117,504	8,235	646,752	31,261	936,087	299,068	.....	18,742	280,325	—85,105
Chicago, Milwaukee & St. Paul	9,690	39,893,798	11,835,760	56,259,772	6,838,101	8,140,682	1,107,644	19,968,695	1,010,612	37,065,737	19,194,035	161,851	2,375,489	16,980,396	—2,244,769
Chicago, Peoria & St. Louis	255	740,805	208,461	1,008,438	209,620	244,390	47,756	488,690	36,452	1,026,911	—18,473	.....	33,600	—52,073	—113,978
Chicago, Rock Island & Gulf	476	1,254,405	412,285	1,797,349	205,715	243,282	68,284	696,246	55,480	1,269,009	528,339	—6,710	70,981	450,646	—324,054
Chicago, Rock Island & Pacific	7,636	25,904,926	11,582,755	40,020,819	5,164,506	5,583,678	1,087,538	16,177,657	1,107,841	29,121,221	10,899,597	—106,555	2,008,888	8,784,153	—673,672
Chicago, St. Paul, Minneapolis & Omaha	1,746	7,030,958	3,394,378	11,123,756	1,548,863	1,333,826	207,777	4,150,165	251,656	7,492,289	3,631,466	13,357	558,463	3,086,360	224,378
Chicago, Terre Haute & Southeastern	361	1,163,989	126,124	1,321,768	208,727	377,799	26,555	424,208	62,169	1,099,459	222,309	—2,491	80,500	139,317	—117,528
Cincinnati, Hamilton & Dayton	1,014	4,430,031	1,042,889	6,123,110	1,011,774	1,074,571	153,327	2,935,772	142,888	5,318,333	804,776	.....	242,102	562,674	—850,316
Cincinnati, New Orleans & Texas Pacific	337	4,830,358	1,227,136	6,364,063	626,529	1,623,050	176,795	1,845,943	141,191	4,413,510	1,950,553	—6,293	213,000	1,731,260	—186,052
Cincinnati Northern	244	739,781	148,667	928,218	218,179	259,087	19,692	397,836	25,185	919,982	8,235	.....	40,059	—31,826	—197,277
Cleveland, Cincinnati, Chic. & St. Louis	2,364	14,745,926	5,643,474	22,328,114	3,184,639	5,570,934	574,176	9,603,435	483,251	19,416,436	2,911,678	—3,244	849,167	2,059,265	—3,719,000
Colorado & Southern	1,126	3,525,893	983,089	4,809,108	669,542	958,072	75,974	1,684,893	153,219	3,541,703	1,267,405	—6,069	231,778	1,029,557	—432,907
Colorado Midland	337	857,181	181,059	1,139,113	210,836	260,433	57,474	496,874	39,947	1,065,565	73,548	—3,137	58,000	12,410	—161,348
Cumberland Valley	162	1,547,337	442,234	2,081,433	468,865	234,602	38,146	703,605	60,934	1,506,153	575,279	1,198	43,244	533,233	—104,800
Delaware & Hudson	880	11,598,893	2,075,804	14,172,495	1,059,679	2,188,838	195,402	5,163,737	470,303	9,077,961	5,094,534	—11,699	377,553	4,705,281	—749,315
Delaware, Lackawanna & Western	959	17,419,905	5,306,060	24,321,317	2,935,451	3,617,771	520,993	7,436,308	479,141	14,989,666	9,331,650	287,236	1,175,000	8,443,887	—843,490
Denver & Rio Grande	2,585	10,716,319	3,429,726	14,777,909	2,197,918	2,645,695	302,078	4,591,240	374,359	10,111,291	4,666,618	5,678	653,600	4,018,696	—475,426
Denver & Salt Lake	226	449,523	247,820	737,602	125,476	108,985	15,911	229,897	31,055	511,326	226,275	.....	28,000	198,275	—7,780
Detroit & Mackinac	411	436,790	215,738	700,374	82,866	114,657	16,530	257,536	19,156	490,747	209,627	658	60,193	150,092	—2,833
Detroit & Toledo Shore Line	78	958,259	.....	965,958	91,539	71,883	12,374	266,681	18,613	461,092	504,866	.....	41,300	463,566	98,148
Detroit, Grand Haven & Milwaukee	190	906,967	424,353	1,559,299	190,946	202,411	48,890	789,576	37,680	1,269,505	289,793	546	25,200	265,139	178,420
Detroit, Toledo & Ironton	441	776,482	89,776	950,901	241,403	316,912	18,248	548,360	36,352	1,161,278	—210,376	.....	39,900	—250,276	—365,798
Duluth & Iron Range	275	4,602,316	181,293	4,853,800	588,116	492,183	8,477	1,100,785	117,104	2,306,667	2,547,132	9,119	262,054	2,294,198	—130,373

Commission and Court News

INTERSTATE COMMERCE COMMISSION

The commission has suspended from April 20 to July 30 a Great Northern tariff increasing rates on live stock.

The commission has suspended from April 5 to August 3 a Union Pacific tariff, increasing rates on grain and grain products moving from St. Paul, Minn., and other points taking same rate, to points in Kansas and other states.

The commission has suspended from April 10 to June 26 a Pittsburgh & Lake Erie tariff making changes in the rules governing transit privileges on grain, feed, hay, straw, at Pittsburgh, Pa., which result in increased charges.

The commission has suspended until July 30 certain schedules in tariffs of the Chicago, Rock Island & Pacific, the Elgin, Joliet & Eastern and the Chicago & North Western, increasing rates on cement between points in Illinois and points in Minnesota and other states.

The commission has further suspended from April 7 to October 7 certain schedules in a Galveston, Harrisburg & San Antonio tariff, affecting the absorption of unloading charges on carload shipments of freight originating at Houston, Tex., for shipside delivery at Galveston.

The commission has suspended from May 1 to July 30, a Grand Trunk tariff increasing rates on coal in carloads from interstate points to Crawford avenue, Greenwood avenue, Peterson avenue and Weber, points on the Chicago & North Western in the Chicago switching district.

The commission has further suspended from April 9 to October 9 certain schedules in a Chicago, Burlington & Quincy tariff, affecting switching between industries located on the tracks of the Chicago, Burlington & Quincy and track connection with the Rock Island Southern at Galesburg, Ill.

The commission has suspended from April 3 to August 1, a Kansas City Southern tariff proposing reductions in the rates on grain and grain products originating at points in Kansas and Nebraska when transported from Kansas City to Port Arthur for export, suspension being made because of alleged discriminations caused by the proposed reductions.

The commission has suspended from April 7 to August 5 a tariff of F. A. Leland, agent, and one of Eugene Morris, agent, increasing rates on apple juice, fermented, unfermented and generated, apple cores, skins and peelings, in carloads from Siloam Springs, Ark., to Paris, Tex., and from certain other stations in Arkansas to Austin, Tex., and San Antonio, Tex.

The commission has suspended from April 2 to July 31, a Denver & Rio Grande tariff canceling the through commodity rates on wool and mohair, in carloads, from points on its line to St. Louis, Mo., eastern seaboard and other points via the Atchison, Topeka & Santa Fe, the Chicago, Rock Island & Pacific, the Chicago, Burlington & Quincy Railroad and other routes, and restricting the routing to St. Louis via the Missouri Pacific only on the traffic to that point and to points beyond.

Pulpwood Rates from Minnesota Points

Curry & Whyte Company et al. v. Duluth & Iron Range et al. Opinion by Commissioner Clark:

The commission does not find unreasonable the rates on pulpwood in car loads from stations in Minnesota on the Duluth & Iron Range; the Duluth, Missabe & Northern; the Duluth, Rainy Lake & Winnipeg (now the Duluth, Winnipeg & Pacific); and the Duluth & Northern Minnesota to Duluth applied as combination rates for through transportation to pulp and paper mill points in Wisconsin and Michigan. It is held that in this instance the saw-log rates from these points of origin to Duluth, which are lower than the pulpwood rates do not afford a fair test of the reasonableness of the latter rates. It is found, however, that there is an undue prejudice against pulpwood traffic from the points of origin involved, in that the carriers apply Superior rates on other traffic from Duluth to Wisconsin and Michigan while maintaining interstate pulpwood rates from Duluth 1½ cents higher than from Superior. It is ordered, therefore, that the rates on pulpwood logs from Duluth should not exceed those from Superior. The commission adheres to the view expressed in *Pulp & Paper Manufacturers Traffic Association v. C. M. & St. P.*, to the effect that the nature of pulpwood operations renders a distance scale adjustment to the gateways advisable. No reparation is awarded because of the lack of proof that the complainants were the ones who were damaged through the discriminatory rates. (30 I. C. C., 1.)

Coal Rate Found Unreasonable

J. T. Stone & Son v. Southern Railway. Opinion by the commission:

The commission finds a rate of $2.05 per ton on coal from Newcomb, Tenn., to Greenville, S. C., to be unreasonable in that it exceeded a more recently established rate of $1.95. Reparation awarded. (29 I. C. C., 699.)

Rates on Boxboard from Wilmington, Ill.

In re boxboard rates from Wilmington, Ill., and other points to Chicago, Milwaukee and other points. Opinion by Commissioner Clements:

The commission finds unreasonable proposed changes in the rates on strawboard, chipboard and boxboard in carloads from Wilmington, Ill., to Chicago group points from 5 to 6½ cents per 100 lb., and in the rates to Milwaukee from 6½ to 8½ cents. The rate of 4½ cents to Chicago and that of 8½ cents to Milwaukee group points were to remain unchanged. The proposed rates are not unreasonable in themselves; they will, however, work to the disadvantage of Wilmington as against competitive producing points. If the carriers wish to readjust their rates on boxboard they should devise a plan which will not benefit some points at the expense of others. (29 I. C. C., 694.)

Discrimination Against Coal Mines Found

Campbell's Creek Coal Company v. Ann Arbor Railroad et al. Opinion by Commissioner Meyer:

The complainant company, which at one time owned the Campbell's Creek Railroad, and which at the time this case was brought had practically the same set of stockholders and directors, petitioned for rates from its mines on that road equal to the main line or Kanawha district rates applying from points on the Kanawha & Michigan and certain of its connections. The commission finds that defendant's application of the main line rates to points on the Kanawha & West Virginia and the Coal & Coke, while denying them to complainants constitutes discrimination and it is ordered that the main line rates to points on the lines mentioned should be cancelled or else that the main line rates should be established as joint rates with the Campbell's Creek Railroad. It is also held that it is the duty of the latter to supply cars for shipments from points on its line to other points than the company's river tipple where coal is transferred to barges for carriage to Cincinnati. Defendant's contention that it would be impossible to hold the Campbell's Creek Railroad a common carrier without finding it guilty of a violation of the commodities clause is held not to be sustained by the facts. (29 I. C. C., 682.)

Kanawha & Michigan Points Given Joint Rates to Eastern C. & O. Points

Hughes Creek Coal Company et al. v. Kanawha & Michigan et al. Opinion by Commissioner Meyer:

This report contains the findings in two cases. In the one case the commission finds that the carriers should establish a rate from complainant's mines on the Kanawha & Michigan and its branches to points in eastern and southeastern territory on the lines of the Chesapeake & Ohio and its connections equivalent to the rate of $1.60 applying from stations in the Kanawha district of West Virginia on the line of the Chesapeake & Ohio itself. It is held that the factor of the two line haul in the routes suggested is negligible since the switch connection between the Kanawha & Michigan and the Chesapeake & Ohio at Gauley is simple, and the fact noted that the average haul to destinations

is more than 500 miles. The policy of the Chesapeake & Ohio restricting the movement of coal to shipments originating on its own line is termed unjustifiable. A similar request for joint routes over the Chesapeake & Ohio to the Cincinnati switching district is denied because such routes would give the Kanawha & Michigan a short haul very much less than other routes now in existence, which include almost the entire length of its line. A charge that since the Chesapeake & Ohio and the Kanawha & Michigan are practically one road (the latter owning 40,265 of a total of 90,000 shares) it is unjustly discriminatory to deny the Kanawha & Michigan mines access to markets which have been made available for the Chesapeake & Ohio mines is held not to be established. (29 I. C. C., 671.)

Carrier's Storage Rule Upheld

American Hay Company v. Central Vermont. Opinion by the commission:

The defendant transfers cars on its car ferry from New London, Conn., to its East River pier at New York City. Its tariff rules limit the storage of cars containing hay or straw for any one consignee to 5, any in excess of that number being held at New London or other points subject to a charge of $1 per day. In June, 1912, the car ferry service was impeded by a strike. Cars were held at New London, etc., and storage was charged except on certain cars which were reconsigned. The commission finds that the rule of the carrier is reasonable, but holds that provision should be made for additional free time because of bunching and for notification to consignees when cars are constructively placed at holding points. Reparation is awarded for demurrage collected on cars which arrived at holding points during the strike or which were bunched in transit, but not on cars which were reconsigned. (29 I. C. C., 659.)

STATE COMMISSIONS

The Oklahoma Corporation Commission has directed all roads in the state to appear at a hearing on April 14 and show cause why the commission should not issue an order providing that the rates now charged for freight and passengers shall not be advanced by any carrier until tariffs are filed and the advance is approved by the commission. It is understood that the principal purpose of the order is to prevent the roads from advancing passenger rates, which are now the subject of litigation.

The Massachusetts Public Service Commission has reported to the governor on its investigation of certain "other expenses of the New York, New Haven & Hartford Railroad." "The main objects of the investigation have been accomplished by the publicity incident thereto. . . . The improper relations between the railroad company and some of the state-house reporters have been further dealt with by the House of Representatives through an amendment to its rules prohibiting legislative reporters from representing applicants for legislation. No extended comment is necessary on those persons who were shown to be involved in any of the vicious practices which this public investigation has effectually killed." Continuing, the report says:

"The voucher system of the New Haven Railroad is entirely inadequate and inaccurate. It should be so reformed that the voucher will show with substantial accuracy the nature of the services rendered, and also show what official is really responsible for the expenditure authorized. The mere multiplication of official names upon vouchers serves but to hide or destroy real responsibility.

"The New Haven Railroad expended some $7,800 of its own money for the purpose of distributing copies of a publication issued on December 19, 1912, containing an utterly false and misleading statement to the effect that the validation commission of 1910 had found the value of the New Haven Railroad's assets to be $101,000,000 more than its liabilities. To publish or to authorize the expenditure of funds of a public service corporation for publishing statements, known to be false and misleading, concerning official findings as to public service corporations should be made a criminal misdemeanor. Analogous legislation as to false advertising has already been enacted. Investors in mining properties and purchasers of ordinary goods are not entitled to a higher degree of protection against false advertising than are investors in the securities of public service corporations subject to the supervision of regulating commissions."

PERSONNEL OF COMMISSIONS

Winthrop M. Daniels has resigned his place as a member of the Public Utilities Commission of New Jersey. Mr. Daniels was nominated by President Wilson a member of the Interstate Commerce Commission some weeks ago, but was confirmed by the Senate only last Friday.

C. W. Pifer, who has been appointed senior civil engineer for the Central district, Division of Valuation, Interstate Commerce Commission, with headquarters at Chicago, as noticed last week, was born at Lafayette, Ind. He was graduated from Purdue University, with the degree of B. C. E., and immediately began railway work, in charge of level and transit parties on preliminary surveys for proposed lines in Southern Indiana. From May, 1893, to April, 1896, he was with the Pennsylvania on an engineering corps at Logansport, Ind., and Terre Haute, and from the latter date to November, 1898, was on an engineering corps of the Cleveland, Cincinnati, Chicago & St. Louis at Mattoon, Ill., and engineer in charge of special improvements at Alton, Ill. He then went to the Illinois Central as assistant engineer of the Amboy division, and in February, 1901, was made office engineer in connection with second track work in Mississippi. Subsequently, until September, 1902, he was resident engineer in charge of second track construction in Illinois, being appointed assistant engineer at Fulton, Ky., on the latter date. In June of the following year he was transferred to the general office at Chicago as assistant engineer, in charge of chief engineer's party, and handling special engineering, designing yards, grade reduction work, etc. Three years later he was appointed engineer in charge of construction work near Memphis, Tenn., and from March, 1907, to February, 1913, he was roadmaster of the Springfield and Minnesota divisions. Mr. Pifer then located at Dubuque, Iowa, as a consulting engineer, in which business he was engaged when he was appointed senior civil engineer for the Central district, Interstate Commerce Commission, as above noted.

C. W. Pifer

COURT NEWS

At Cincinnati April 7 the United States Circuit Court of Appeals affirmed the decision of the lower court imposing fines of $14,000 on the Grand Rapids & Indiana Railway and $3,000 on the Nichols & Fox Lumber Company for giving and receiving illegal rebates.

In the federal court at Trenton, N. J., April 2, the Erie Railroad was found guilty of violation of law in making too low a rate on freight shipped from Jersey City to Missouri in 1912. William S. Cowie, general eastern freight agent, tried at the same time, was acquitted.

In the federal court at New York City last week, Judge Hough decided adversely in the suit of the government for an injunction to restrain the Erie Railroad from issuing passes to agents of transatlantic steamships and the Great Eastern Railway of England. Judge Hough holds that there is no material

difference between exchanging passes with a domestic road and doing the same thing with a foreign carrier.

By a decision of the Court of Appeals of New York April 3, the New York Central has had to pay $70 for a passenger's hand baggage left at a station (not transported) and which was lost. The company resisted payment of the owner's claim on the ground that it was liable only for a limited sum, but the court finds that no specific contract had been entered into and therefore holds that the liability of the company is for full value.

Lackawanna Coal Company Not Condemned

The United States Circuit Court of Appeals at Trenton, N. J., April 7, dismissed without prejudice the suit of the government against the Delaware, Lackawanna & Western Railroad Company and the Delaware, Lackawanna & Western Coal Company, brought to dissolve the alleged unlawful relations between the two companies. The decision, by Judges Gray, Buffington and McPherson, says that there is no statute and no decision of the Supreme Court prohibiting the same set of individuals from holding stock in two distinct corporations, even though the two concerns may be engaged in closely related business.

The railroad company, taking coal from its own mines, formerly marketed the coal directly; but to comply with the commodities clause of the Interstate Commerce law, making it unlawful for a carrier to transport its own coal in this way, the separate corporation, the coal company, was formed. The railroad company declared a stock dividend which furnished the individual stockholders with sufficient capital to buy the stock of the coal company. The government, in its argument, declared that this was merely a subterfuge to evade the law, the ownership of the railroad and the coal company continuing substantially the same as before. The decision says:

"We may assert with confidence that since a railroad itself may own stock in the producing or owning concern without offending the statutes, no offense is committed, although the individual subscriber to such stock may also be a stockholder in a railroad. . . ." The court finds that the stockholders of neither concern have used their positions improperly to influence the acts of the other corporation. There was a formal charge against both defendants under the anti-trust act, but the oral argument left the court under the impression that these charges were not much insisted on by the government.

The government desired a decision on the alleged violation of the commodities clause and, therefore, the evidence bearing upon the charge of restraining or monopolizing commerce is not discussed. . . . "If we are mistaken in this supposition the error can easily be corrected," says the court.

The government declared that by reason of the arrangements of the defendant corporations, the support of the railroad company and the peculiar advantages and facilities acquired, the coal company secured and has maintained an unlawful monopoly of the sale of coal along defendant's railroad, and has completely dominated the market at all points not reached by any other railroad.

An appeal will at once be taken to the United States Supreme Court.

The action was begun in February, 1913, and was argued in Philadelphia under an expediting certificate on January 27, last. A somewhat similar suit was recently instituted against the Lehigh Valley and its subsidiaries in the federal court in New York. Another federal suit against the Reading to separate it from the Central Railroad of New Jersey and other interests is pending in the federal court at Philadelphia.

In the first suit decided by the Supreme Court on the commodities clause it was held that that clause was constitutional, but a railroad was not forbidden to own stock in a bona fide corporation which owns the commodity the railroad transports.

Under present arrangements the Lackawanna sells coal to the new coal company on the basis of 65 per cent. of the average price received at tidewater. Under this contract the railroad, which continues to mine the coal from the land it owns, sells it at the mine to the coal company, and the railroad transports it for the coal company. It was admitted at the hearing that the stock of the coal company was largely if not entirely owned by stockholders of the railroad company.

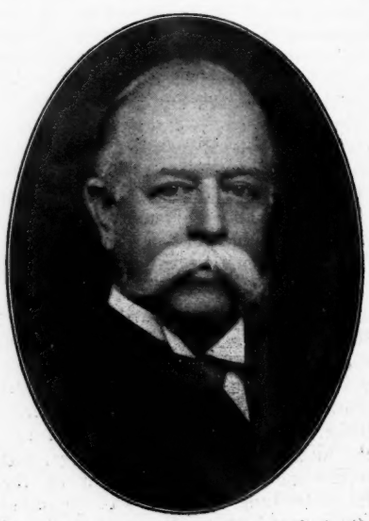
Railway Officers

Executive, Financial, Legal and Accounting

Hiram M. Kochersperger, vice-president of the New York, New Haven & Hartford, in charge of finance and accounting, with headquarters at New Haven, Conn., on April 2, tendered his resignation on account of ill health and has been granted leave of absence until July 1, next, when he will be retired under the pension rules of the company. He was born on December 27, 1856, at Philadelphia, Pa., and began railway work in May, 1873, as clerk on the Philadelphia & Reading at Port Richmond, Philadelphia, Pa. From September, 1878, to May, 1881, he served consecutively as freight clerk, general bookkeeper and chief clerk in the auditor's office of the Atchison, Topeka & Santa Fe, at Topeka, Kan., and then to July, 1883, was chief clerk in the auditor's office of the New York & New England, now a part of the New York, New Haven & Hartford, and from July, 1883, to May, 1887, was auditor of the same road. He was then appointed comptroller of the New York, New Haven & Hartford, remaining in that position until January 1, 1904, when he was elected vice-president in charge of financial and accounting departments, from which position he will be retired on July 1, as above noted. Mr. Kochersperger's duties as vice-president of the New Haven embraced the various subsidiaries, including the steamship lines and the trolley lines. He was a member of the American Association of Accounting Officers, and for a time served as its president.

H. M. Kochersperger

Joseph Baldwin Hutchinson, assistant to the vice-president in charge of real estate, purchases and insurance, and formerly for six years general manager of the Pennsylvania Railroad, with office at Philadelphia, Pa., who was retired on April 1, under the pension rules of the company, as was noted in these columns last week, was born in Bristol, Pa., on March 20, 1844, and graduated from the Polytechnic College of Pennsylvania in 1861. He entered the service of the Pennsylvania Railroad in June, 1863, as a rodman on the Mifflin & Centre county. The following September he was appointed rodman on the Western Pennsylvania, and was promoted in August, 1864, to assistant engineer of that road, and in May, 1865, to assistant engineer of maintenance of way and construction. In 1868 he was transferred to the Columbia & Port Deposit as assistant engineer, and remained there until January, 1869, when he was appointed assistant engi-



J. B. Hutchinson

neer on the Butler extension. In March, 1869, he returned to the Columbia & Port Deposit, as assistant engineer in charge of that road and the Columbia bridge. In July, 1870, Mr. Hutchinson was promoted to principal assistant engineer of the Columbia & Port Deposit, and in July, 1877, was appointed assistant superintendent of that road. He was promoted on January 1, 1879, to superintendent of the Lewistown division of the Pennsylvania Railroad; July 1, 1881, to superintendent of the Frederick division; December 8, 1884, to superintendent of the Altoona division; January 1, 1890, to superintendent of the Western Pennsylvania division; and one year later, to superintendent of the Maryland division of the Philadelphia, Wilmington & Baltimore, the Baltimore & Potomac and the Washington Southern. On March 1, 1893, he was appointed general superintendent of transportation of the Pennsylvania Railroad system; and in February, 1897, was promoted to general manager remaining in that position until January 1, 1903, when he was appointed to the newly created position of assistant to the second vice-president, and now retires as assistant to vice-president after an active service of nearly 51 years as above noted.

Operating

J. E. Roberts has been appointed general superintendent of the Greenwich & Johnsonville, with office at Greenwich, N. Y., succeeding T. J. Lynch, transferred.

Thomas H. Pindell, formerly superintendent of the Chicago, Peoria & St. Louis, at Springfield, Ill., has been appointed superintendent of the Alton & Southern, with office at East St. Louis, Ill.

A. C. Peterson, trainmaster of the Chicago, Milwaukee & St. Paul at Mason City, Iowa, has been transferred to Ottumwa Junction, in a similar capacity, succeeding W. H. Druen, resigned, and C. A. Anderson succeeds Mr. Peterson.

E. W. Grice, assistant to vice-president in charge of operation of the Chesapeake & Ohio and the Chesapeake & Ohio of Indiana at Richmond, Va., has been appointed assistant general manager, with office at Richmond, and his former position has been abolished.

T. B. Fogg, general manager of the Toledo Terminal Railroad, with office at Toledo, Ohio, has resigned to accept service with another company, and the duties of that office have been assumed by A. B. Newell, president and general manager. J. E. Withrow has been appointed trainmaster, with office at Toledo, Ohio.

C. L. Hamilton has been appointed trainmaster of the Western division of the Pennsylvania Lines West, of Pittsburgh, Northwest System, at Ft. Wayne, Ind., in place of J. F. Patterson, promoted. E. M. Reese succeeds Mr. Hamilton as assistant trainmaster, and H. E. Hart takes the place of Mr. Reese as chief train despatcher.

H. O. Halsted, superintendent of the Petoskey division of the Pere Marquette, has been appointed assistant to the general manager, with headquarters at Detroit, Mich. The Petoskey division has been merged with the Chicago division, with J. W. Mulhern as superintendent, with headquarters at Grand Rapids. The Canadian division has been consolidated with the Detroit division, with J. J. Corcoran as superintendent, with office at Detroit. J. L. Hayes, superintendent of the Port Huron division, with headquarters at Saginaw, has been appointed superintendent of the Grand Rapids-Port Huron district. W. K. Tasker, superintendent of the Canadian division, has been appointed superintendent of telegraph lines.

H. T. Malcolmson, who has been appointed superintendent of the Toronto, Hamilton & Buffalo, with headquarters at Hamilton, Ont., as has been announced in these columns, was born on May 22, 1877, at Hamilton, Ont., and was educated in the public and private schools of his native town. He began railway work in May, 1899, as a stenographer in the superintendent's office of the Grand Trunk at Toronto, and, the following September, was appointed stenographer to the general superintendent of the Toronto, Hamilton & Buffalo. In June, 1903, he was appointed chief clerk to the general superintendent on the same road and was promoted to car accountant in April, 1912. He remained in this position until January, 1914, when he was appointed superintendent of car service and now becomes superintendent of the same road, as above noted.

Traffic

G. A. Weller has been appointed assistant general freight agent of the Ann Arbor, with headquarters at Toledo, Ohio.

E. Gegenbach has been appointed general agent of the freight and passenger departments of the St. Louis & San Francisco at St. Louis, Mo.

J. L. West, general freight agent of the Missouri, Kansas & Texas of Texas, has been appointed freight traffic manager of the entire system, with headquarters at Dallas, Tex.

Alexander Tinling, assistant general freight agent of the Northern Pacific at Tacoma, Wash., has been appointed assistant general freight and passenger agent at Seattle, Wash.

A. R. Malcolm, commercial freight agent of the Missouri Pacific, St. Louis, Iron Mountain & Southern, Denver & Rio Grande and Western Pacific at Milwaukee, Wis., has been appointed assistant general freight agent of those roads, with headquarters at Omaha, Neb.

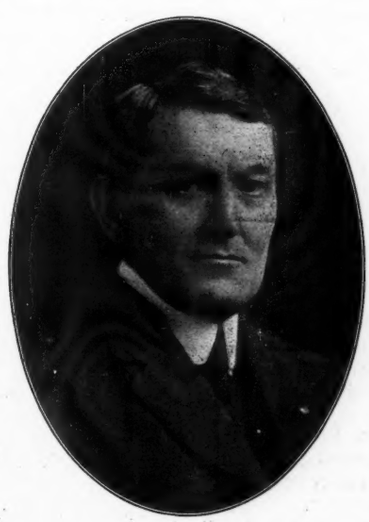
M. R. Leahy, chief clerk in the general passenger department of the Chicago & North Western, has been appointed assistant general passenger agent, with headquarters at Chicago. J. A. Williams, terminal passenger and ticket agent at Chicago, succeeds Mr. Leahy, and H. G. Van Winkle, passenger agent at New York takes the place of Mr. Williams. Robert Thomson, chief rate clerk in the general passenger department, has been appointed assistant general passenger agent at Chicago.

Engineering and Rolling Stock

C. A. Morse, chief engineer of the Chicago, Rock Island & Pacific, with office at Chicago, has been appointed chairman of the Valuation Committee of that road.

C. S. Kirkpatrick has been appointed division engineer of the St. Louis, Brownsville & Mexico, with headquarters at Kingsville, Tex., succeeding E. S. Heyser, resigned to engage in other business.

Daniel Joseph Brumley, whose appointment as valuation engineer of the Illinois Central, with headquarters at Chicago, has already been announced in these columns, was born March 19, 1865, near Belmore, Ohio. He was graduated in civil engineering from the Ohio University in 1895, and began railway work in June of that year as assistant section foreman on the Louisville & Nashville at Evansville, Ind. He was with the Columbus & Hocking Coal & Iron Company from August to December, 1896, as assistant engineer at New Straitsville, Ohio, and the following two years he was successively assistant supervisor of the Louisville & Nashville at Belleville, Ill., section foreman at Evansville, Ind., rodman at Louisville, Ky., and assistant engineer at Clarksville, Tenn. In December, 1898, he was made assistant engineer in the chief engineer's office at Louisville, and the following April was promoted to assistant engineer of that road. He left the Louisville & Nashville in September, 1901, to go to the Mexican National as roadmaster at Laredo, Tex., but returned to the former road one month later as roadmaster at Elizabethtown, Ky., where he remained until October, 1904. He was then appointed division engineer of the Indianapolis Southern at Indianapolis, Ind., and in March, 1905, was made principal assistant engineer of the Illinois Central, the Yazoo & Mississippi Valley and the Indianapolis Southern, with office at Chicago. Mr. Brumley was engineer of construction of the two former roads from June, 1910, to April, 1913, when he was appointed en-



D. J. Brumley

gineer maintenance of way. In November last he was made assistant chief engineer, with headquarters at Chicago, and is now appointed valuation engineer, as above noted.

The Philadelphia & Reading announces that two committees have been formed to co-operate with the Interstate Commerce Commission in making a valuation of the company's property in accordance with the federal law. The committees are as follows: Advisory Committee—Theodore Voorhees, vice-president; Charles Heebner, general solicitor, and William Hunter, chief engineer. Valuation Committee—Charles Hansel, consulting valuation engineer, chairman, with offices at Philadelphia, Pa., and New York; Carl Tombo, principal assistant valuation engineer; E. Y. Allen, assistant valuation engineer; E. F. Sterner, civil engineer; William L. Kinter, assistant general solicitor, and W. H. White, comptroller.

Special

Prof. W. H. Olin, director of agricultural extension work in the University of Idaho, has been appointed commissioner of agriculture for the Denver & Rio Grande, with headquarters at Denver, Colo. Professor Olin was graduated from the State Agricultural College of Kansas in 1889. He was principal of high schools and superintendent of city schools at various points in Kansas until 1902, when he became instructor in farm crops at the Iowa State Agricultural College, Ames, Iowa. In 1904 he was made professor of agronomy in Colorado Agricultural College at Fort Collins, and from 1907 to 1909, was vice-dean of agriculture. He then went to the Denver, Laramie & Northwestern Railway as industrial commissioner, which position he held until 1911, when he became director of agricultural extension work at the University of Idaho.

OBITUARY

John R. Skinner, superintendent of stores of the Delaware & Hudson at Oneonta, N. Y., died suddenly on April 6 at his home in that city.

Charles F. Smith, superintendent of the Montana division of the Oregon Short Line, with headquarters at Pocatello, Idaho, died on March 30 at the home of his parents at Niagara Falls, N. Y. Mr. Smith was granted leave of absence last November on account of ill health.

Samuel F. Barger, formerly, from 1869 to 1909, a director of the New York Central Lines, died on April 7 at his home in New York at the age of 82. Mr. Barger had been in failing health since his retirement from active business eight years ago. He was born in New York City and studied law at the College of the City of New York. He was admitted to practice in both the states of New York and New Jersey at the age of eighteen years and soon rose to prominence as a corporation lawyer.

William O'Herin, assistant to the general manager of the Missouri, Kansas & Texas System, with headquarters at Dallas, Tex., died at the Mercy hospital, Chicago, March 31, aged 69 years. He had been connected with the Missouri, Kansas & Texas for 40 years, beginning as a locomotive fireman. He was later locomotive engineer, and subsequently became master mechanic. He was promoted to superintendent of machinery and equipment in 1897, which position he held until January 1, 1913, when he was made assistant to the general manager.

Cyrus Warman, for some time past a press agent or publicity adviser of the Grand Trunk at Montreal, died at Chicago April 7 at the age of 68. Mr. Warman was born in Illinois and began railroad work on the Denver & Rio Grande in 1880, working first as a wiper, and later as locomotive fireman and then engineman. At the age of 33, he began to do a little newspaper work in Colorado, and from a small beginning he soon became a popular poet and story writer; and as "Cy Warman" he is widely known in the literary world. He was one of the first, if not the very first, of American railroad men to make a success as a writer of stories of railroad life. He was the first writer who combined the taste requisite to make a pleasing story with the knowledge of railroad work and the candor as an observer necessary to make his delineations true to life.

Equipment and Supplies

LOCOMOTIVE BUILDING

The Maryland & Pennsylvania is in the market for two mikado type locomotives.

The Korean Government Railways have ordered nine superheater ten-wheel type locomotives from the American Locomotive Company. These locomotives will have 21 by 26 in. cylinders, 66 in. driving wheels, a total weight in working order of 156,000 lb. and a steam pressure of 180 lb.

The Southern Railway has ordered five superheater mikado type freight locomotives from the American Locomotive Company. These locomotives will have 27 by 30 in. cylinders, 63 in. driving wheels, a total weight in working order of 278,000 lb. and a steam pressure of 175 lb.

CAR BUILDING

The Chicago & North Western has ordered 2,000 40-ton box cars from the Pullman Company.

The St. Louis, Brownsville & Mexico is said to have placed its order for cars. This item has not been confirmed.

The Boston & Maine has given the Laconia Car Company an order to apply 3,500 steel underframes purchased by the road from the Pressed Steel Car Company.

The Chicago, Milwaukee & St. Paul is in the market for 10 coaches and 11 sleeping, 3 observation, 1 dining, 2 combination passenger and baggage and 2 combination mail and baggage cars.

IRON AND STEEL

The Pennsylvania has ordered 10,000 tons of steel rails from the Cambria Steel Company and 10,000 tons from the Pennsylvania Steel Company. These orders are regarded merely as "test" orders.

SIGNALING

The Chicago & North Western has just completed the installation of automatic block signals on its line between the Missouri valley and Sioux City, Ia., a distance of 75 miles.

New Locomotives for Italian State Railways.—The Italian government has recently placed orders with a number of Italian firms for 215 locomotives of various types.

Transportation in the German Kameruns.—The development of the German West African colony of the Kameruns will depend almost entirely upon the extension of its railways. The region has many small rivers and creeks used by small steam and sailing vessels, and motor and row boats, but none of these, with the exception of the lower part of the Kamarun river, are navigable for large river steamers or ocean-going vessels. In the rainy season, in particular, the natives can get about quite freely. There are now three lines of railway in the colony. The Northern, or Duala-Nkongsamba railway, is the principal line. It extends from Bonnabera, across the river from Duala to Nkongsamba. The Midland extends from Duala to Edea and is about 100 miles long. Both of these lines are of 3½ ft. gage. There is also a short tramway from Victoria, the seaport, to Buea, the capital, about 20 miles inland. The Midland is being extended to the French Congo boundary to the southeast. It is also proposed to extend the Northern toward Lake Chad, and the tramway farther inland. There are several government motor-car lines in operation, one from Kribi, on the coast, to Jaunde, about 200 miles inland. But many of the trading stations in the interior depend almost entirely upon "native carriers" for carriage of import and export goods, and as many as 200 to 300 boys are at times employed by one firm.

Supply Trade News

The Edgar Steel Seal & Manufacturing Company has received orders from the American Steel & Wire Company for 50,000 Edgar seals for use at five plants.

Quincy A. Hall, formerly engineer of tests of the Isthmian Canal Commission, has associated himself with the Morgan T. Jones Company, Monadnock Block, Chicago, as secretary and engineer of tests.

E. L. Pollock, formerly vice-president of the Chicago, Rock Island & Pacific, has been appointed Chicago sales manager of the National Graphite Lubricator Company, Scranton, Pa. He will have offices in the McCormick building, Chicago.

The Chicago branch sales office of the United States Light & Heating Company, Niagara Falls, N. Y., has been moved from 1013 Peoples Gas building to 2335 State street. This change puts the Chicago sales office and the service station in the same building.

A. P. Montague has been appointed general manager of the Covington Machine Company, Covington, Va., effective April 1. Mr. Montague was formerly general superintendent of the Lynchburg Foundry Company, Lynchburg, Va., having held that position for about 10 years.

James C. H. Ferguson, for the past thirteen years Pacific coast sales agent of the Midvale Steel Company, Philadelphia, Pa., has severed his connection with that company and is now Pacific coast representative of the William Cramp & Sons Ship & Engine Building Company, Philadelphia, with office in the Monadnock building, San Francisco.

The Link-Belt Company, Chicago, manufacturers of Link-Belt Silent Chain for the transmission of power for elevating and conveying machinery, locomotive cranes, etc., has opened an office in Detroit, Mich., Room 911, Dime Bank building. L. W. Longan, formerly connected with the Chicago and Indianapolis works of the company has been placed in charge.

Walter Bentley has recently been appointed western representative of the Curtain Supply Company, Chicago. He is a son of H. T. Bentley, superintendent of motive power of the Chicago & North Western, and he has had a thorough railway training. Beginning in the stores department, he worked his way through various branches of railway work, having served in different departments of the shops and in the roadmaster's, general superintendent's and purchasing agent's offices. The last two years he has represented the Baldwin Locomotive Works and the Standard Steel Works Company.

Judge Edward G. Bradford of the United States District Court has rendered a decision in the patent litigation of the Seeger Refrigerator Company v. American Car & Foundry Company, involving a claim of infringement of patents owned by the Seeger company in the manufacture and sale of 16,032 refrigerator cars equipped with the Bohn partition made by the White Enamel Refrigerator Company. The court awarded the complainant nominal damages of six cents, together with its costs, except those involved in the accounting, and awarded the defendant its costs involved in the accounting. A previous decision had held that the Seeger patents had been infringed and it having been decreed that the complainant might recover of the defendant profits and damages the case was referred to a master to report an account of the profits and damages. The present decision is on exceptions to the master's report that the profits made by the defendant by reason of the infringement amounted to $662,923, or the amount of the profit on the car bodies. The court says, however, the complainant has failed to prove that profits were made by reason of the Bohn partition in excess of such profits as might have been made without the use of that partition, and therefore sustained an exception to the master's report.

Railway Construction

ATLANTIC COAST LINE.—The Wilcox branch of the Lakeland district has been opened for business from Wilcox Junction, Fla., south to Dunnellon, 51 miles. (November 28, p. 1,047.)

BEAUMONT & GREAT NORTHERN.—See Missouri, Kansas & Texas.

BIG CREEK LOGGING COMPANY'S LINES.—A contract has been given to C. L. Houston, Astoria, Ore., to build a three-mile extension of this company's logging line in the Big Creek district of Oregon.

BUFFALO, ROCHESTER & PITTSBURGH.—This company has given a contract to the Miller Construction Company, Lock Haven, Pa., it is said, to build more than a mile of double track through the Creek Side, Pa., yards to Cummings, together with additional trackage in the yards at Creek Side on the Indiana branch.

The Tearing Run branch of the Pittsburgh division has been opened for business from Lucerne, Pa., to Waterman, three miles.

CANADIAN NORTHERN.—Track is being laid on an extension from the present end of track at Birds Hill, Man., north to Grand Marais, on the east side of Lake Winnipeg, 50 miles. It is proposed to extend the line to Victoria Beach, an additional 14 miles.

CINCINNATI, INDIANA & LOUISVILLE.—Under this name, a company is to be incorporated in Indiana, it is said, to build from Madison, Ind., east via Brooksburg, Lamb, Vevay and Markland, to Florence, thence north via Patriot, North, Risingsun, French and Aurora, to Lawrenceburg and eventually to Cincinnati, Ohio. M. Griffith, Vevay, Ind., is said to be interested.

CHICAGO, MILWAUKEE & ST. PAUL.—The Channing-Iron River line of the Superior division has been extended from Crystal Falls Junction, Mich., west to Iron River, 21 miles.

CUMMINGS & NORCROSS.—An officer writes that surveys will be finished in about 30 days for the line from Cummings, Ga., southwest via Ocee to Norcross, 23 miles. It has not yet been decided when bids will be asked for the work. The maximum grades will be 2 per cent., and there will be one 300-ft. girder bridge on the line. C. L. Harris, president, and P. B. Lawrence, chief engineer, Cummings. (March 27, p. 767.)

DEGNON TERMINAL RAILROAD CORPORATION.—An officer writes that this company will build a line in Long Island City, borough of Queens, N. Y., traversing property bounded on the north by Thomson avenue, on the south by Hunters Point avenue, on the east by School street and on the west by Meadow street, near the Sunnyside yard of the Long Island Railroad. The grading work has already been finished; this was carried out in connection with building city streets and grading adjacent property to be served. About 25 per cent. of the track has been laid. The Degnon Contracting Company is carrying out the track laying. A. A. Stuart, president; N. G. Degnon, chief engineer, New York.

GRAND TRUNK PACIFIC.—The track of the Grand Trunk Pacific is now continuous from Fort William, Ont., on Lake Superior to Prince Rupert on the Pacific coast, the last rail having been laid on the main line at a point 375 miles east of Prince Rupert, B. C., and 1,371 miles west of Winnipeg, Man., at 12:45 p. m. on April 7.

GENEVA, SENECA FALLS & AUBURN (Electric).—A preliminary survey has been made, it is said, for building an extension from Seneca Falls, N. Y., east to Auburn.

IDAHO ROADS.—The Boise-Payette Lumber Company propose to build a railway into Boise Basin, Idaho, it is said. C. A. Barton, Minneapolis, Minn., vice-president and general manager.

ISMAY, EKALAKA & SOUTHERN (Electric).—According to press reports, this company plans to build an electric line from Ismay, Mont., southeast via Ekalaka to Bellefourche, S. Dak., about 140 miles. Kenneth McLean, Miles City, Mont., is interested.

Kansas Roads (Electric).—Plans are being made by the Century Engineering & Construction Company, Joplin, Mo., it is said, to build an interurban line from Columbus, Kan., south to Miami, Okla., 22 miles. George Thayer, secretary.

Lake Shore & Michigan Southern.—The report of this company for the year ended December 31, 1913, shows that work in connection with a change of line at Port Clinton, Ohio, was continued and improvements were carried out at Air Line junction, consisting of additional yard tracks, new freight engine terminals, coal chute and large general repair yard and shop. A large amount of money was also spent during the year for the separation of grades at Detroit, Mich., Cleveland, Ohio, Toledo, Ohio, and Chicago.

Lexington & Eastern.—See Louisville & Nashville.

Louisville & Nashville.—An officer writes regarding a report that the Lexington & Eastern will build a number of branch lines in eastern Kentucky—that no branch line construction has been authorized other than three small spurs which have been under construction for about six months. These lines are being built up Bottom branch four-fifths of a mile; Yonts fork two miles, and Potter's fork two miles. It is probable that these lines will be ready for operation during May of this year.

Michigan Central.—The improvements carried out by this company, as shown by the annual report for the year ended December 31, 1913, included the double tracking of a section of the Detroit Delray & Dearborn, also the construction of a double track connection from this line to the main line of the Michigan Central near Junction yards, West Detroit, Mich. During the year the Detroit Terminal Railroad was extended 3.89 miles to a connection with the Michigan Central's main line, near Junction yards, West Detroit. A double hump gravity switching yard with 66 miles of track at Junction yards, also an extension of Jackson Junction yards were completed, and the line between North Toledo yards and West Toledo was double tracked. Under an arrangement with the Manistee & North Eastern a spur track was built to a point about 6.31 miles from Grayling.

Minnesota Northwestern (Electric).—An officer writes that a grading contract has been given to John Moberg, Bemidji, Minn., and a contract for tracklaying has been given to I. Helseth, Thief River Falls, for work on the line building east from Thief River Falls, Minn., via Silverton and Cloverleaf to Goodridge, 20 miles. The work involves handling about 8,000 cu. yd. to the mile. The maximum curvature will be 6 deg. There will be one combination 150-ft. steel and 350-ft. wood trestle on the line. The company expects to develop a traffic in grain, cattle and farm products. Daniel Shaw, president; H. W. Protzeller, general manager, and G. H. Martz, chief engineer. The headquarters of the company are at Thief River Falls. (March 20, p. 73.)

Missouri, Kansas & Texas.—An officer writes regarding the report that the Beaumont & Great Northern is to be extended from Weldon, Tex., northwest to Waco, that while an extension of that road has been under consideration at various times, there is no prospect of anything being done in the immediate future.

Morgan & Fentress.—Incorporated in Tennessee, with $100,000 capital, to build from a point on the Cincinnati, New Orleans & Texas Pacific near Nemo station, Tenn., northwest to Jamestown, about 30 miles. F. E. Enwright is an incorporator.

Moultrie & Pelham.—Application has been made in Georgia for a charter to build from Moultrie, Ga., west to Pelham, about 30 miles. J. L. Hand, Pelham, Ga., may be addressed.

New York Central & Hudson River.—The report of this company for the year ended March 31, 1913, shows that work was continued on the four-tracking of the Hudson division from Storm King, N. Y., to Chelsea and through Poughkeepsie to Germantown, also from Mott Haven to Peekskill and on the electrification of the line from Mott Haven to Croton. In this is included the development of a new terminal of the electric division at Harmon. A comprehensive plan of improvements at Yonkers includes the elevation of tracks and the construction of additional main tracks, also a new freight yard layout. Work has been continued during the year on the construction of a connecting line between the main line of the New York Central & Hudson River and the West Shore at Harbor, east of Utica, also on the changing of grade crossings in the city of Buffalo.

New York Subways.—The New York Public Service Commission, First district, has awarded the contract for the construction of Section No. 1-A of Route No. 12 of the Eastern Parkway subway in the borough of Brooklyn to the Cranford Company, the lowest bidder. Bids are wanted until April 24 for the construction of Section No. 2 of Routes Nos. 4 and 36 of the Broadway subway in the borough of Manhattan. This section extends under Broadway from Twenty-sixth street to about Thirty-eighth street; there will be a local station at Twenty-eighth street and an express station at Thirty-fourth street. (April 3, p. 812.)

North Carolina Roads (Electric).—Plans are being made to build an electric line, it is said, from Lenoir, N. C., north via Blowing Rock to Boone, about 25 miles. T. H. Coffey, Blowing Rock, is interested.

Pittsburgh, Cincinnati, Chicago & St. Louis.—An officer writes that a grading contract has been given to the Ferguson & Edmondson Company for building a three-mile coal branch from Avella, Pa., on Burgetts branch, southwest to a coal mine near Pattersons Mills. The grading work involves handling about 250,000 cu. yd.

Salisbury Interurban.—Application has been made for incorporation in Maryland by this company, with $100,000 capital, to build about 40 miles of railway from Nanticoke, Md., or some other point on the Nanticoke river. E. R. White, R. K. Truitt, W. H. Insley and M. Cooper are interested.

Tucson, Phoenix & Tidewater.—An officer writes that the prospects of building a new line are good, and the contracts will probably be let before next fall. The projected route is from Tucson, Ariz., northwest to Phoenix, thence west to tidewater, on the Pacific coast. The maximum grades will be 0.5 per cent. and maximum curvature 3 degrees. There will be two steel bridges each 1,500 ft. long on the line. The company expects to develop a traffic in agricultural products, lumber, oil, coal and copper ores. J. S. Douglas, president; C. C. Small, chief engineer, both of Douglas, Ariz. (April 3, p. 812.)

RAILWAY STRUCTURES

Buffalo, N. Y.—The report of the Lake Shore & Michigan Southern for the year ended December 31, 1913, shows that during the year work was finished on the new double track drawbridge at Buffalo on which work was started in 1912 and other improvements carried out included a new engine house and car repair yard at Wesleyville, Pa. At Elkhart, Ind., a power house for the new locomotive repair shop, and at Englewood, Ill., new engine terminals and new freight car repair shed and tracks were also completed. The construction of a new car repair plant at Ashtabula, Ohio, will be completed early in 1914.

Chicago, Ill.—Mayor Harrison last week signed the three ordinances providing for the erection of a new union passenger terminal in Chicago, and for new freight terminals for the Pennsylvania Lines West of Pittsburgh, which were passed by the city council on March 23. The railways have six months in which to accept or reject the ordinances, after which they will be submitted to the Illinois Public Utilities Commission for its approval.

Clinton, Tenn.—According to press reports, the Southern Railway will put up a new combined freight and passenger station of brick construction with slate roof at Clinton.

Danville, Va.—The Southern Railway will build a two-track concrete arch bridge, it is said, over the Dan river, at Danville.

Denver, Colo.—Announcement has been made of plans for the construction of the new Union depot, to cost $4,000,000, including incidental terminal facilities connected with it, on which work is to begin this summer. The plans provide for the expenditure of $300,000 in the remodeling of the present station, $150,000 for the construction of new train sheds, $160,000 for the building of subways for passengers, baggage, express and mail, $110,000 for interlocking and signal equipment, and over $3,000,000 for the extension of yards and raising the level of the tracks.

DETROIT, MICH.—The report of the Michigan Central for the year ended December 31, 1913, shows that owing to the destruction of the company's passenger station and general offices at Detroit, Mich., in December of that year, train service was at once transferred and the general offices moved to the new station and general office building under construction by the Detroit River Tunnel Company and leased to the Michigan Central. During the year the company replaced the Grand river bridge, also the buildings destroyed by fire at West Detroit stock yards, and a new ice house was built at West Detroit and improvements in Detroit's outlying freight houses were made. At Jackson Junction yards the erecting shop was extended and a blacksmith shop was built, and a new grain elevator was built at Kensington, Ill., to replace the one destroyed by fire. At North Toledo, Ohio, a roundhouse was built and repairs to tracks were also made, and at St. Thomas, Ont., a new erecting shop and power plant has been provided.

HARRISBURG, PA.—The Cumberland Valley has filed with the Pennsylvania Water Supply Commission plans for a proposed reinforced concrete double track bridge across the Susequehanna river at Harrisburg. The application for permission to build was filed some time ago. The bridge is to replace the present steel bridge and it is proposed to begin work in May. The bridge will have 60 spans of 75 to 77 ft. in length and the engineers expect to utilize present piers for part of the structure.

JOHNSTOWN, PA.—The Pennsylvania Railroad has let contracts for carrying out improvements on two and a half miles through Johnstown, Pa. J. Goll & Company, Philadelphia, will do all of the work east of the stone bridge, including about 4,300 ft. of concrete retaining wall along Jasper alley in the eleventh ward; overhead bridge at Fourth street; a similar structure at Sixth street; a subway at First street and possibly a retaining wall along Conemaugh river, east of the local passenger station. Work west of the stone bridge will be done by P. McManus, Philadelphia, and will include a subway at the Haws crossing just west of the stone bridge; an overhead foot bridge at Branch street, the raising of the Brownstown overhead bridge and approaches; subways at Delaware, at Fairfield and at Laurel avenues; a concrete retaining wall along B street, and a bridge at Dornick Point, probably 600 ft. long, with two abutments and six piers. The bridge is to be constructed to carry two tracks.

LONG ISLAND CITY, N. Y.—The Long Island Railroad has plans made for putting up a new passenger station at Hunters Point and Van Alst avenues, in Long Island City.

ST. JOHNS, QUE.—The Railway Commission of Canada has has authorized the Canadian Pacific to build a bridge across Richelieu street, St. Johns, Que., and to rebuild bridges over Irish Creek, near Jasper, Ont., and over Three Tree Creek, near Fredericton Junction, N. B.

UTICA, N. Y.—The report of the New York Central & Hudson River for the year ended December 31, 1913, shows that the important projects carried out during the year included a new brick and stone passenger station at Utica, N. Y., also a new engine terminal and an increase of terminal yard tracks; at Rome, a change of line, also a new passenger station and new water station. Improvements at Rochester, comprising a new stone passenger station and purchase of land for the enlargement of the Kent street yard, new freight facilities, and the extension and reconstruction of several bridges, placing of additional tracks and constructing a new power house and several auxiliary buildings, were also carried out. In connection with the four-tracking work new passenger stations at Staatsburgh and Rhinecliff; new ferry house, yard, tracks, etc., at Fishkill Landing; the elimination of grade crossings, new sidings and grading at Poughkeepsie and extending and reconstructing various bridges are included in the improvements. At Yonkers the plans call for a new passenger station, a new freight house, and at Glenwood a new passenger station. The grade crossings at Irvington and Ossining are also to be eliminated and there will be new stations at these places, also some additional tracks. The main concourse waiting room and many of the permanent facilities of the Grand Central terminal improvements in New York City were opened to the public on February 1, 1913, and since that date rapid progress has been made towards the completion of the station and improvements being carried out in connection with this work.

Railway Financial News

BRINSON.—The secretary of state of Georgia has approved a charter amendment authorizing this road to change its name to the Savannah & Northwestern and to reduce its capital stock from $1,500,000 to $1,000,000, divided into 10,000 shares of $100 each.

BUFFALO, ROCHESTER & PITTSBURGH.—White, Weld & Co., Colgate, Parker & Co. and Robert Winthrop & Co., all of New York, have bought from the company and are offering to the public $1,400,000 consolidated mortgage 4½ per cent. bonds of May 1, 1907-1957. These bonds are part of the authorized issue of $35,000,000, of which, including the present issue, $8,712,000 are outstanding. The bonds are secured by a mortgage on 360 miles of road, on 80 miles of which the mortgage is a first lien and on the remainder subject to $9,997,000 underlying bonds. The gross corporate income available for interest and dividend payments in 1913 was $4,077,000, and interest and rental requirements amounted to $1,950,000.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—Guy Cary has been elected a director, succeeding W. W. Finley, deceased, and Moreau Delano has been elected a director, succeeding Charles Steele, resigned.

COLORADO & SOUTHERN.—President Miller, in making the announcement that no dividend was declared on the preferred stock, says in part:

"This condition has been brought about by the strike of the Colorado coal miners declared in the early fall of 1913 and the serious shortage in the cotton and other crops on the Texas lines of the company.

"Every effort has been made to restrict operating and maintenance expenses as far as prudence would permit, but as a result of these conditions the operating income of the Colorado & Southern Railway Company for the seven months ended January 31, 1914, shows a decrease of $432,908 as compared with the previous year, and a correspoding reduction of $915,266 in the operating income of the Colorado & Southern System Lines for the same period.

"The revival of general business in the territory served by the Colorado & Southern will depend largely upon the outcome of the next crop season.

"In view of this serious shortage in revenue and the uncertain prospects for the immediate future, we think the stockholders will agree that it would be unwise for the company to make any dividend payments at this time."

GALVESTON, HOUSTON & HENDERSON.—White, Weld & Company and J. & W. Seligman & Co., both of New York, are offering $1,997,000 first mortgage 5 per cent. bonds of 1913-1933 at 98¼, yielding about 5.15 per cent.

LARAMIE, HAHNS PEAK & PACIFIC.—The reorganization committee has announced that sufficient assents have been made by security holders to the plan of reorganization to make that plan operative and steps will at once be taken to put the plan into effect.

MACON, DUBLIN & SAVANNAH.—See Seaboard Air Line.

ST. LOUIS SOUTHWESTERN.—The directors have decided to declare a quarterly dividend on the preferred stock of one-half of one per cent. instead of the usual quarterly dividend of one per cent.

SEABOARD AIR LINE.—A press despatch says that the Macon, Dublin & Savannah, which runs from Macon, Ga., to Savannah, 172 miles, has been leased by the Seaboard Air Line and will in the near future be taken over for operation.

UNION PACIFIC.—Justice Greenbaum, of the New York Supreme Court, has decided the case brought by the Equitable Life Assurance Society, as a stockholder of the preferred stock of the Union Pacific, to prevent the distribution of Baltimore & Ohio stock to common stockholders, in favor of the railroad company and the common stockholders.

[ADVERTISEMENT.]

ANNUAL REPORTS

NEW YORK CENTRAL AND HUDSON RIVER RAILROAD COMPANY ANNUAL REPORT

To the Stockholders of

THE NEW YORK CENTRAL AND HUDSON RIVER RAILROAD COMPANY:

The following report is submitted by the Board of Directors named in the agreement of consolidation approved at a special meeting of the stockholders, held in the city of Albany on April 16, 1913, and covers the entire year ended December 31, 1913, although the operations of the property were conducted under two distinct corporations, each bearing the name of The New York Central and Hudson River Railroad Company.

The former of these two corporations merged with itself, on March 7, 1913, the following named companies, whose properties had been operated under various leases and agreements and whose entire capital stock was owned by The New York Central and Hudson River Railroad Company:

Buffalo Erie Basin Railroad Company
Carthage & Adirondack Railway Company
The Gouverneur & Oswegatchie Railroad Company
The Mohawk & Malone Railway Company
New York & Ottawa Railway Company
The New York & Putnam Railroad Company (which on the same day merged with itself The Mahopac Falls Railroad Company)
The New York Central Niagara River Railroad Company
The Spuyten Duyvil & Port Morris Railroad Company
Tivoli Hollow Railroad Company
Tonawanda Island Bridge Company

The second corporation was formed by the consolidation, under an agreement dated March 5, 1913, becoming effective April 16, 1913, between The New York Central and Hudson River Railroad Company, Rome Watertown & Ogdensburg Railroad Company, The Utica & Black River Railroad Company, Oswego & Rome Railroad Company, The Niagara Falls Branch Railroad Company, Carthage Watertown & Sackets Harbor Railroad Company (the property of the latter four companies having been operated under the lease of the Rome Watertown & Ogdensburg Railroad) and the Little Falls & Dolgeville Railroad Company which had been operated independently. The outstanding capital stock of these companies was owned by The New York Central and Hudson River Railroad Company, with the exception of a slight proportion on which a convertible value of $2,851,766 was set.

By these corporate changes, property, the cost of which to the original companies was $62,607,792.29, has been added to that formerly owned by the company at a cost of $54,307,693.55, which covers securities purchased, advances for construction purposes to the constituent companies during the years they were under lease, funded obligations of the several companies outstanding at the time of the merger or consolidation and the convertible value of such capital stock as was not owned by the company, as shown in the following statement:

Capital stock purchased at a cost of		$15,433,848.30
Bonds purchased at a cost of		1,456,000.00
Cash advanced for construction purposes		7,955,900.41
Funded debt obligations assumed		27,011,000.00
Outstanding stocks at convertible value		2,851,766.00
		$54,708,514.71
Less Assets and liabilities assumed or cancelled and capital stocks acquired by The New York Central and Hudson River Railroad Company without cost		400,821.16
		$54,307,693.55

The following statement of the railroad property acquired by the merger of March 7, 1913, and by consolidation on April 16, 1913, shows the miles of road, the cost to each original company and the cost to The New York Central and Hudson River Railroad Company:

	Miles	Cost of road to original company	Cost to the N Y C & H R RR Co
Buffalo Erie Basin Railroad	.25	$13,503.19	$100.00
Carthage & Adirondack Railway	45.86	1,610,058.59	1,168,918.01
Gouverneur & Oswegatchie Railroad	13.07	676,321.52	326,331.52
Mohawk & Malone Railway	182.18	11,541,632.36	7,041,732.36
New York & Ottawa Railway	69.27	2,794,318.35	1,545,318.35
New York & Putnam Railroad	56.83	12,467,327.82	5,929,427.82
Mahopac Falls Railroad	2.05	100,112.50	
New York Central Niagara River Railroad	2.81	28,100.00	28,100.00
Spuyten Duyvil & Port Morris Railroad	5.31	3,961,242.98	5,232,242.98
Tivoli Hollow Railroad	1.24	35,991.98	15,956.40
Tonawanda Island Bridge		56,965.13	7,065.13
Total for merged roads	378.87	$33,285,574.42	$21,295,192.57
Rome Watertown & Ogdensburg Railroad	414.88	$21,684,683.11	$26,615,382.98
Utica & Black River Railroad	150.16	5,037,377.91	4,604,555.51
Oswego & Rome Railroad	26.62	998,875.30	786,785.30
Carthage Watertown & Sackets Harbor Railroad	28.96	804,131.01	597,615.09
Niagara Falls Branch Railroad	8.58	257,719.98	25,474.38
Little Falls & Dolgeville Railroad	10.08	539,430.56	382,687.72
Total for consolidated roads	639.28	$29,322,217.87	$33,012,500.98
Grand total	1018.15	$62,607,792.29	$54,307,693.55

The capital stock of the various companies and the mortgage bonds of the New York & Ottawa Railway Company were cancelled by the agreements of merger or consolidation, so that the capital stock of The New York Central and Hudson River Railroad Company was not increased except by the convertible value of the stocks of the consolidating companies in the hands of the public at the date of the consolidation, nor was the surplus of the new company affected by the merger or consolidation.

It should be borne in mind that the interest on all bonds assumed in connection with the merger and consolidation was formerly paid by The New York Central and Hudson River Railroad Company as rental of the properties covered by the various mortgages, with the exception of $300,000 of bonds issued by the Carthage Watertown & Sackets Harbor Railroad Company on which interest was paid out of that company's income.

The mileage embraced in the operation of the road is tabulated as follows:

	Miles
Main line and branches owned	1,827.66
Proprietary line	.18
*Leased lines	1,580.86
Lines operated under contract	71.28
Trackage rights	273.14
Total road operated	3,753.12

These figures show a decrease of 37.53 miles as compared with the mileage reported December 31, 1912, which is accounted for as follows:

DECREASES DURING THE YEAR

		Miles	
By elimination, from the report, of the mileage of the Ottawa & New York Railway, which is entirely in the Dominion of Canada, including the mileage operated by it under trackage rights		58.84	
Mileage formerly reported as main line now classified as side track:			
Buffalo Erie Basin Railroad	.25		
New York Central Niagara River Railroad	2.81	3.06	
By remeasurement and change of alinement at various places		.11	62.01

INCREASES DURING THE YEAR

Mileage owned, classified as main line, formerly reported as side track:			
Hoffmans Connection Branch	2.50		
Schenectady Detour Branch	4.65	7.15	
Mileage added by consolidation:			
Little Falls & Dolgeville Railroad now named the Dolgeville Branch	10.08		
Dolgeville & Salisbury Railway formerly operated under contract by the Little Falls & Dolgeville Railroad Company	3.89	13.97	
By extension:			
Port Morris Branch, New York & Harlem Railroad	.02		
Boardman Branch, Beech Creek Extension Railroad	2.09	2.11	
By remeasurement or changes of connection at various places		.44	
By additional trackage rights over various railroads		.81	24.48
Making a net decrease of			37.53

The capital stock outstanding on December 31, 1912, was.	$222,729,300.00
This has been increased by the amount of the convertible value of capital stock of consolidating companies outstanding in the hands of the public on April 16, 1913	2,851,766.00
making the total amount outstanding on December 31, 1913.	$225,581,066.00

The former authority for the stock of this company, $250,000,000, was cancelled by the agreement of consolidation and the amount of stock authorized to be issued at the present time is $225,581,100, of which all but the sum of $34 is now outstanding.

Mortgage, bonded and secured debt outstanding on December 31, 1912, was		$346,028,225.14
This has been added to as follows:		
Gold debentures of 1912, bearing interest at the rate of four and one-half per cent per annum	$32,000.00	
New York Central and Hudson River Railroad Company bond protected by mortgage executed by the Geneva Corning & Southern Railroad Company bearing interest at the rate of four per cent per annum	600,000.00	
This company's pro rata liability in connection with equipment trust certificates of 1913, bearing interest at the rate of four and one-half per cent per annum	6,028,012.95	
Mortgage on real estate in the city of New York, bearing interest at the rate of three and one-half per cent per annum	1,000,000.00	
The assumption, as funded obligations of this company, of the outstanding bonds of merged and consqlidating companies	27,011,000.00	34,671,012.95
		$380,699,238.09
and has been decreased as follows:		
New York Central-Michigan Central collateral bond scrip cancelled	$445.00	
Oswego & Rome Railroad Company second mortgage bonds cancelled	2,000.00	
Payments of installments falling due during the year on this company's pro rata liability in connection with the certificates issued under equipment trust agreements as follows:		
Trust of 1907, installment due March, 1913	793,660.12	
Trust of 1910, installment due January, 1913	433,964.42	
Trust of 1912, installment due January, 1913	477,116.10	
Boston & Albany trust of 1912, installment due October, 1913	348,000.00	2,055,185.64
Outstanding, as shown on the balance sheet of December 31, 1913		$378,644,052.45

*The Dunkirk Allegheny Valley and Pittsburgh Railroad, 90.51 miles, is also leased by this company, but its mileage and operations are not included in this report. Separate accounts are kept and independent returns prepared in its behalf.

SUMMARY OF FINANCIAL OPERATIONS AFFECTING INCOME

OPERATING INCOME	1913	1912*	INCREASE OR DECREASE
RAIL OPERATIONS	3,753.12 *miles operated*	3,731.81 *miles operated*	21.31 *miles*
Revenues	$116,904,304.05	$109,697,588.34	$7,206,715.71
Expenses	87,932,040.97	81,129,838.65	6,802,202.32
NET REVENUE FROM RAIL OPERATIONS	$28,972,263.08	$28,567,749.69	$404,513.39
Percentage of expenses to revenues	(75.22%)	(73.96%)	(1.26%)
AUXILIARY OPERATIONS			
Revenues	$5,780,345.32	$5,579,083.89	$201,261.43
Expenses	5,725,537.41	5,255,057.55	470,479.86
NET REVENUE FROM OUTSIDE OPERATIONS	$54,807.91	$324,026.34	—$269,218.43
NET REVENUE FROM ALL OPERATIONS	$29,027,070.99	$28,891,776.03	$135,294.96
TAXES ACCRUED	6,356,545.91	5,893,995.91	462,550.00
OPERATING INCOME	$22,670,525.08	$22,997,780.12	—$327,255.04
OTHER INCOME			
Joint facilities rents	$2,283,363.39	$1,929,462.60	$353,900.79
Miscellaneous rents	702,493.98	406,187.82	296,306.16
Net profit from investments in physical property	117,027.37	62,073.62	54,953.75
Dividends on stocks owned or controlled	12,168,536.78	12,791,889.90	—623,353.12
Interest on funded debt owned	450,181.03	508,829.12	—58,648.09
Interest on other securities, loans and accounts	652,588.69	1,785,755.12	—1,133,166.43
Contributions from other companies	260,359.34	.....	260,359.34
Miscellaneous income	33,677.84	395,944.16	—362,266.32
TOTAL OTHER INCOME	$16,668,228.42	$17,880,142.34	—$1,211,913.92
GROSS CORPORATE INCOME	$39,338,753.50	$40,877,922.46	—$1,539,168.96
DEDUCTIONS FROM GROSS CORPORATE INCOME			
Rentals of leased lines	$8,518,856.66	$10,055,192.32	—$1,536,335.66
Hire of equipment	1,026,558.22	1,969,039.74	—942,481.52
Joint facilities rents	567,853.29	619,975.18	—52,121.89
Miscellaneous rents	455,335.23	838,710.77	—383,375.54
Miscellaneous tax accruals	38,120.61	15,961.73	22,158.88
Separately operated properties—loss	39,281,33	346,612.72	—307,331.39
Interest on bonds	10,603,317.10	9,661,603.05	941,714.05
Interest on three year gold notes of 1911 and 1912	2,250,000.00	1,903,125.00	346,875.00
Interest on equipment trust certificates	1,347,411.57	1,031,538.64	315,872.93
Other interest	1,170,832.75	337,426.34	833,406.41
Transfer of income to other companies	67,543.75	99,800.80	—32,257.05
St L & A Railway: rental of leased line	10,000.00	10,000.00	.....
N Y & Ottawa Railway: interest on bonds	.....	58,240.00	—58,240.00
Other deductions	84.58	48,003.13	—47,918.55
TOTAL DEDUCTIONS FROM GROSS CORPORATE INCOME	$26,095,195.09	$26,995,229.42	—$900,034.33
NET CORPORATE INCOME	$13,243,558.41	$13,882,693.04	—$639,134.63
DIVIDENDS, four each year at five per cent per annum	11,243,021.25	11,136,465.00	106,556.25
SURPLUS FOR THE YEAR CARRIED TO PROFIT AND LOSS	$2,000,537.16	$2,746,228.04	—$745,690.88

Balance to credit of profit and loss (free surplus) as shown in report of December 31, 1912		$13,185,413.04
Amended by eliminating surplus of the St. Lawrence & Adirondack Railway Company	$52,951.91	
and deficit of the Ottawa & New York Railway Company	95,535.53	42,583.62
		$13,227,996.66
Additions for year:		
Surplus from operations	$2,000,537.16	
New York New Haven & Hartford Railroad Company for its proportion of special franchise assessment within Grand Central Terminal area prior to 1913	84,056.35	2,084,593.51
		$15,312,590.17
Deductions for year:		
Discount, commissions and expenses account of N Y C Lines equipment trust of 1913	$209,141.33	
Discount, commissions and expenses on various short term loans	905,069.47	
Discount and commissions account debentures of 1912	2,615.00	
Charging off amounts against Hudson River Bridge Company for expenditures prior to 1886, not collectible	854,423.36	
Charging off value of abandoned facilities	191,140.58	
Cash advances to Clearfield Bituminous Coal Corporation for interest, sinking fund and tax payments	114,921.26	
Charging off various accounts and reversal of accruals due to consolidation (net)	43,625.00	
Reduction of book value of capital stock in the Merchants Despatch Transportation Company to par value	17,311.00	
Various adjustments and cancellations (net)	8,549.02	2,346,796.02
BALANCE TO CREDIT OF PROFIT AND LOSS (FREE SURPLUS) DECEMBER 31, 1913		$12,965,794.15

—Indicates decreases.

* Revised: Ottawa & New York Railway transactions eliminated.

In view of the merger and consolidation, results of the operation of the Ottawa & New York Railway are not, after January 1, 1913, included with the operations of this company and in the following analyses and the tables upon which they are based, the report of December 31, 1912, has been revised for purpose of comparison by eliminating all items arising from the operation of the Ottawa & New York Railway.

For the year covered by this report the revenue from transportation was $115,218,498.91, an increase of $6,960,749.27; revenue from operations other than transportation was $1,685,805.14, an increase of $245,966.44; revenue from auxiliary operations (connected with, but in addition to transportation by rail) was $5,780,345.32, an increase of $201,261.43.

Rail operating revenues showed large increases through the earlier months of the year, the increase up to October 31 being $7,784,039.77, but November and December revenues declined $577,342.06, reducing the increase in rail operating revenues to $7,206,715.71 for the entire year.

The total gross revenue from all operations was $122,684,649.37, an increase of $7,407,977.14.

Freight revenue was $68,986,695.35, an increase of $3,996,721.30. The revenue freight carried amounted to 55,100,277 tons, an increase of 3,265,223 tons over last year.

All five groups of classified commodities show increased tonnage carried during the year, the largest increase being in products of mines in which group bituminous coal gave an increase of 2,353,416 tons (equal to 19 per cent.) while anthracite coal and coke show 370,408 tons less than in the preceding year. Products of agriculture show an increase of 411,099 tons, chief of which is grain, with an increase of 327,690 tons. Products of animals show an added tonnage of 126,245, generally distributed throughout the classified list of this class of freight. Products of forests increased 196,514 tons. Manufactured articles increased 250,047 tons, the only decreases being in cement, brick and lime, iron and steel rails, pig and bloom iron and in other articles in this group not separately classified. Commodities not classifiable increased 115,677 tons.

The total revenue of all passenger-train transportation was $44,470,102.28, an increase of $2,989,205.77 over the year 1912. Of this amount the revenue from express traffic was $4,708,835.70, a decrease of $23,892.94, due to shrinkage in the volume of business. Mail revenue was $3,017,827.93, an increase of $486,683.31 which accrued in the last six months of the year, due to the adjustment of mail pay based on the regular quadrennial weighing of the mail carried, which took place in the spring of 1913. This increase is due to the normal growth of the mail matter carried since the last weighing of the mail four years ago, and in a small degree to the additional parcel post matter carried. The remuneration to the railroad company for parcel post matter carried was based on the limit of eleven pounds, no provision having been made as yet by Congress for compensation for the additional weights of mail carried consequent on the enlargement of the parcel post weight limit on August 15, 1913. The situation in reference to railway mail pay is still unsatisfactory and is unsettled, pending the report of the joint Congressional Committee now sitting and the taking of definite action by Congress on the findings of that committee.

The expenses of rail operations amounted to $87,932,040.97, an increase of $6,802,202.32. The ratio of rail operating expenses to the total revenues for the year was 75.22 per cent, an increase of 1.26 per cent over the ratio for the year 1912. Of the total increase of $6,802,202.32 the larger part was occasioned by increased expenditures in the upkeep of the road and equipment, the total increases being as follows: for maintenance of way, structures and equipment, $4,458,058.91, for expenses of securing and transporting traffic $2,176,222.63, and for general administration $167,920.78.

The operating expenses, by groups, were:

Maintenance of way and structures	$16,941,987.46	an increase of $2,292,922.18
Maintenance of equipment	22,584,246.05	an increase of 2,165,136.73
Traffic expenses	2,284,267.06	a decrease of 25,349.22
Transportation expenses	43,165,465.48	an increase of 2,201,571.85
General expenses	2,956,074.92	an increase of 167,920.78
Auxiliary operations	5,725,537.41	an increase of 470,479.86

In the maintenance of way and structures, the following are the items which constitute the principal increases:

Ties, $602,365.70, due to the average price of ties having advanced about eight cents per tie, and due to a somewhat larger number laid during the year 1913, to compensate for the smaller number in 1912, owing to the slow delivery during that year.

Rails, $92,293.45, due to a somewhat larger tonnage than formerly having been laid to equip certain portions of the property for the use of more modern and economical motive power.

Other track material, $288,787.01, due to the installation of heavy tie-plates, to prolong the life of ties, and to other miscellaneous track improvements.

Roadway and track, $647,475.41, due to additional labor employed in placing new ties and laying additional rail, together with the necessary increase in wages of about 6 per cent, or about $300,000, which began to accrue in March and April, 1913.

Bridges, trestles and culverts, $408,338.69, due to the renewal and strengthening of bridges on certain portions of the road, notably that acquired from the Rome Watertown and Ogdensburg Railroad and the lines leased from the Boston & Albany and West Shore railroad companies, and upon certain branches, to permit the operation of heavier and more economical motive power and equipment.

Buildings, fixtures and grounds, $492,989.17, due largely to the replacement of the passenger stations at Rochester, Utica, Pittsfield, Worcester and at other minor stations.

In the maintenance of equipment, repairs of steam locomotives decreased $300,161.93, due to various extensive repairs having been made in 1912 in conjunction with the installation of modern fuel economizing devices, which made it unnecessary to perform equally heavy repairs during the year 1913.

Freight-train car repairs increased $1,761,101.13, due principally to installing safety appliance devices to 14,400 cars, as required by the Interstate Commerce Commission regulations, installing steel underframes to 4,088 cars, and, in connection with the installation of steel underframes, otherwise thoroughly overhauling many cars by applying steel roofs, steel ends, improved trucks and draft-gear rigging. In addition, 15,000 other freight cars were subjected to medium and heavy repairs, necessitated by the heavy business which was handled during the first nine months of the fiscal year.

It was also necessary during the year to increase the wage scale about 6 per cent in the mechanical department, involving an annual increase of about $425,000, of which about $250,000 accrued during the year and is

reflected in the item of car repairs and other items in equipment repairs as a whole.

In transportation expenses, the following is an explanation of the principal items:

In New York and New Jersey, so-called Full Crew laws were enacted, introducing an additional annual expense of approximately $560,000, on account of which there accrued in the expenditures of 1913 about $200,000.

As a result of arbitration with the firemen and conductors and trainmen, which will be referred to later in this report, an additional annual expense of about $850,000 was involved, of which there accrued during 1913 approximately $300,000.

It was further necessary to increase the wages of station forces about 6 per cent, and also add to the number of men employed to handle the additional volume of business.

Superintendence increased $70,699.93 due to the necessity of having to employ additional officers and clerical forces to transact the transportation business of the company, including the preparation of operating reports and statistics in connection with arbitrations and in compliance with the regulations of the various commissions and public authorities having jurisdiction; together with some increase in wages to clerical forces and additional office rent for the enlarged number of employees.

Although the quantity of fuel consumed in transportation service during the year was 70,000 tons less than in 1912 because of the use of fuel economizing devices, there is an increase of $183,000 in the charge for fuel for locomotives, due entirely to an increase in cost averaging six cents per ton.

Continued efficiency in the operation of equipment is indicated by the traffic statistics. Freight locomotive mileage increased less than 1½ per cent, while freight car mileage increased over 8 per cent and ton mileage increased slightly more than 10½ per cent; the average load in freight trains increased 47½ tons, or over 9 per cent, and the number of freight cars to a train was 7 per cent more than in the previous year.

In general expenses appear, for the first time, charges in connection with the valuation of railroad property amounting during the year to $15,906.69.

In the operation of the pension department 140 employees were retired and placed upon the pension roll. Of these retirements 75 were authorized because of the attainment of seventy years of age, and 65 because of total and permanent physical disability. Ninety-four pensioners died during 1913 and at the close of the year 746 retired employees were carried upon the pension rolls. The average monthly pension allowance to these men was $24.35 and the total amount paid in pension allowances during the year was $220,682.31, an increase over the previous year of $19,146.00.

Auxiliary operations show a decrease in net revenue of $269,218.43, the largest decreases being in harbor terminal transfers, $304,634.73, and freight storage plants, $31,204.01; and the main increases in dining and special-car service with a reduced deficit of $40,808.88; and grain elevators with an increased net revenue of $38,330.94.

The amount of taxes on railroad property accrued during the year was $6,356,545.91, equal to 5.18 per cent of the gross revenue from railroad and auxiliary operations, and was $135,294.69 larger than the accruals in 1912. A saving of approximately $38,000.00 in the amount of taxes payable on capital stock to the State of New York was effected by the cancellation of the capital stock of the roads merged and consolidated. A decrease of $187,176.34 in the taxes on real estate and of $7,363.58 in the taxes for special franchises occurred. The year's accounts, however, include a charge of $835,512.00, being the amount of county tax for recording the new mortgage executed after the close of the year under review. The Federal Government excise tax on the income of corporations assessed against this company and its leased lines on the net income of the year 1912 amounted to $147,366.72, an excess of $19,120.88 over the amount paid on the income of 1911 charged to the accounts of the year 1912. Although the principle, on which this company brought test cases, that corporations whose property was leased for a fixed annual rental to an operating corporation were not carrying on business and were not subject to the imposition of the income tax, was affirmed by the judgment of the Supreme Court on appeal by the Federal Government from the rulings of the lower courts, the Government officers have insisted that the taxes assessed against leased lines must be paid and they have, accordingly, been paid, under protest, and suits have been brought for the recovery of all the taxes so paid since the institution of the excise tax in 1909.

In deductions from gross corporate income there appears a decrease of $1,536,335.66 in the rental of leased lines, but this is partly offset by an increase of $898,859.34 in the charge for interest on bonds due to the assumption as funded obligations of this company of the bonds of merged and consolidated companies, and a decrease of $465,905.71 in the income derived by this company from interest and dividends on securities of those absorbed companies which were cancelled on the consummation of the mergers and consolidation, and which amounted to the sum of $655,881.13 in 1912 against the sum of $189,975.42 for the period of 1913 before the cancellation took place. The rental of the Boston & Albany Railroad increased $76,362.59 for the year due to a charge for interest from July 14th on an issue of $2,015,000 improvement bonds amounting to $46,736.81; the charge for a full year's interest amounting to $45,000.00 on $1,000,000 of improvement bonds of 1912 against $22,500.00 for six months in that year; and the charge of $9,067.50 for the increased rate of interest on an issue of refunding bonds at 5 per cent replacing a similar amount of bonds of 1893 which bore interest at the rate of 4 per cent per annum. There was a decrease of $2,125.65 in the rental of the Providence Webster & Springfield Railroad, included in the lease of the Boston & Albany Railroad, and slight increases, for corporate expenses, in the rental of the Pittsfield & North Adams Railroad and the Ware River Railroad.

Interest on funded obligations of this company increased $1,604,461.98 due to an issue of $32,000 of gold debentures of 1912; interest on this company's pro rata liability in connection with equipment trust certificates of 1913; interest on this company's liability in connection with Boston & Albany equipment trust of 1912 for a full year as against three months in 1912 and interest on securities assumed as part of the merger and consolidation agreements, the latter class being offset by an approximately similar deduction in the amount paid for rental of leased lines.

In other income appears a decrease of $682,001.21 in dividends on stocks and interest on funded debt owned. This apparent decrease is caused by the cancellation of securities owned by this company, as referred to in the paragraph dealing with deductions from gross corporate income, and the reduction of the rate of dividend on American Express Company stock.

The rate of dividend on the capital stock of The New York Central and Hudson River Railroad Company for the year was five per cent, being the same as for the years 1912 and 1911.

During the year the company has purchased 949 shares of the capital stock of the New York & Harlem Railroad Company, bringing the total holdings of this stock, at December 31, up to the number of 123,916 shares, being approximately 62 per cent of the total outstanding. It has also acquired 7,500 shares of a par value of $750,000 of the capital stock of the Wells Fargo Express Company, being its pro rata proportion of the stock of that company based on this company's ownership of the stock of the American Express Company.

Several very extensive and important projects for the improvement of facilities have been carried on during the year, chief of which are the following:

Improvements at Utica, consisting of a new brick and stone passenger station, a new engine terminal, increase of terminal yard tracks and the installation of new signal apparatus, for which has been expended during the year the sum of $1,645,881.88.

Improvements at Rome, comprising a change of line including grading tracks, signals, new passenger station and new water station. The charges on account of this improvement reached the total of $483,173.01 during the year.

Improvements at Rochester, comprising a new stone passenger station, purchase of land for enlargement of Kent street yard, new freight facilities, extension and reconstruction of several bridges, the closing of Joiner Street, placing additional tracks, the building of a new power house for heating the passenger station and other buildings and the erection of several auxiliary buildings, involving during the year an expenditure of $689,505.64.

Four-tracking the Hudson division from Storm King to Chelsea and through Poughkeepsie to Germantown. Included in this plan are new passenger stations at Staatsburgh and Rhinecliff; new ferryhouse, yard tracks, etc., at Fishkill Landing; elimination of grade crossings, new sidings and grading at Poughkeepsie; extending and reconstructing various bridges and purchase of land at various points. The charges on account of this improvement reached the total of $2,592,885.97 during the year.

Four-tracking from Mott Haven to Peekskill and the electrification of line from Mott Haven to Croton, including the consequent changes in bridges, stations and signals, cost during the year $1,727,830.35. In this is included the development of a new terminal of the Electric division at Harmon and an important and comprehensive plan of improvements at Yonkers, consisting of the elevation of tracks and the construction of additional main tracks, a new passenger station, a new freight station, a new freight yard layout and a new passenger station at Glenwood; elimination of grade crossings at Irvington and Ossining, including new stations, additional tracks and signal work.

The construction of a connection between this company's main line and the West Shore Railroad at Harbor, east of Utica, has cost during the year $287,908.16, of which amount $36,075.85 has been charged to the West Shore Railroad Company as advances for new construction.

The changing of grade crossings in the city of Buffalo, which has been in progress for many years, has been continued at a cost of $112,553.68 for the work done during the year.

The changes in the accounts relating to the property of this company during the year were:

Charges on account of road:		
For extensions, additions and betterments	$12,832,485.47	
For road acquired by merger and by consolidation	46,627,874.49	$59,460,359.96
Charges on account of equipment:		
For equipment purchased	$8,076,782.09	
For additional trust equipment	7,729,614.77	
For equipment acquired by merger and by consolidation	7,680,801.93	
	$23,487,198.79	
Credit value of equipment retired	4,029,201.41	19,457,997.38
making a net addition to this company's property account of		$78,918,357.34

During the year $2,451,068.45 has been accrued to represent depreciation upon equipment still in service. This does not, however, diminish the amount of actual investment in equipment.

The changes in the character of the rolling stock in revenue service have been numerous and extensive, in continuance of the policy of substituting the strongest and safest cars for such equipment as was not considered to be of the required standard of efficiency and service (but which could be used safely in non-revenue service) and of equipping wooden cars with steel underframes. The following table exhibits the large increases in steel and steel-underframe cars which have been secured during the last two years:

	Year 1911	Year 1912	Year 1913	1913 over 1911
Cars in passenger service:				
Steel	297	388	521	224 = 75%
Steel-underframe	135	173	300	165 = 122%
Cars in freight service:				
Steel	4,600	7,329	8,445	3,845 = 84%
Steel-underframe	11,836	18,754	29,627	17,791 = 150%

Cars of all-wood construction have undergone the changes indicated below:

	Year 1911	Year 1912	Year 1913	1913 under 1911
Cars in passenger service	2,015	1,917	1,787	228 = 11%
Cars in freight service	52,746	46,588	41,724	11,022 = 21%

During the year a net increase of 111 steam locomotives in service is shown and an increase of 10 electric locomotives of an improved type and having a capacity to haul trains of 1,000 tons at a speed of sixty miles an hour. Thirty steel passenger-train cars have been equipped with multiple-unit electric motors and 25 new multiple-unit cars have been acquired, bringing the number of self-propelled cars in passenger service in the Electric division up to 192.

As indicated in last year's report this company together with other New York Central Lines entered into an equipment trust agreement, dated January 1, 1913, under which $24,000,000 of equipment trust certificates, bearing interest at the rate of 4½ per cent per annum were to be executed to cover 90 per cent of the cost of equipment to be acquired. Out of these $24,000,000 of certificates authorized there were issued during the year an aggregate of $15,494,000. The cost of the equipment assigned to this company in connection with the issue of these certificates is approximately $6,697,792.16 and its pro rata amount of certificates representing an amount not to exceed 90 per cent of the cost is $6,028,012.95.

During the year 1913 practically all of the railroads in the eastern section of the United States, operating in the territory east of the Mississippi and north of the Ohio and Potomac Rivers, were parties to arbitrations, first with the Brotherhood of Locomotive Firemen and Enginemen and later with the Order of Railway Conductors and Brotherhood of Railroad Trainmen, acting jointly.

The concerted movement of the firemen demanded standardization of pay and working conditions, involving an increase in the wages of firemen employed by this company of approximately 43 per cent and resulted in arbitration under the Erdman Act. The railroads selected Mr. William W. Atterbury, Vice President of the Pennsylvania Railroad Company and the firemen designated Mr. Albert Phillips, Vice President of the Brotherhood of Locomotive Firemen and Enginemen. The third member of the Board

(appointed by the federal authorities) was the Honorable William L. Chambers of Washington, D. C., who was selected chairman.

The arbitration proceedings were held in New York from March 10th to April 5th and on April 23rd an award was handed down which provided for an increase in the wages paid to firemen on the New York Central & Hudson River Railroad of 9.2 per cent, or approximately $250,000 per annum.

While the Conference Committee of Managers was engaged in preparation for the firemen's arbitration proceedings, a petition approved October 19, 1912, by the Eastern Association of General Committees, Order of Railway Conductors and Brotherhood of Railroad Trainmen, for standardization of rates of pay, involving an increase in the payrolls of this company estimated at $1,769,000, or 24 per cent per annum, was presented to all roads east of Chicago and north of the Chesapeake & Ohio Railway, and to the Conference Committee of Managers as well, with a view to ascertaining whether the matter would be handled by the several roads individually or in concert. United action was determined upon by the roads concerned and an Arbitration Board consisting of six members was agreed to under the terms of the Newlands Amendment of the Erdman Act. The railroads were represented upon this Board by Mr. W. W. Atterbury, Vice President of the Pennsylvania Railroad Company and Mr. A. H. Smith, Senior Vice President, New York Central Lines.

The conductors' and trainmen's organizations designated as their representatives Mr. L. E. Sheppard, Senior Vice President, Order of Railway Conductors and Mr. D. L. Cease, Editor and Manager of "The Railroad Trainman"; and the four members so selected met and completed their Board by choosing the Honorable Seth Low and Dr. John H. Finley, President of the College of the City of New York.

The Board so constituted, having chosen Mr. Seth Low as its chairman, heard testimony between September 11th and October 15th and on November 10th handed down its award, which provided for an incerase in the wages of conductors and trainmen employed by this company of approximately $553,000 per annum, or 7.4 per cent.

Section 19-A of the Act to Regulate Commerce, which became a law on the first day of March, 1913, provides that the Interstate Commerce Commission shall investigate and ascertain the value of all the property owned or used by all railroad companies. The Commission is required to ascertain and report in detail as to each piece of property owned or used, the original cost to date, cost of reproduction new, cost of reproduction less depreciation; also all other values and elements of value, if any, of such property. It is also required to investigate and report upon the history and organization of the present and of any previous corporation operating the property; upon moneys received by reason of any issue of stocks, bonds or other securities; upon the syndicating, banking and other financial arrangements under which such issues were made and the expense thereof, together with a large number of other matters unnecessary to specify in detail. The company is required to cooperate with and aid in the work of the valuation of its property in such particulars and to such extent as the Commission may require and direct. It is impossible even to approximate at this time the expense which will thereby be incurred.

The performance of the work for the company has been undertaken by a Valuation Committee appointed by the Board of Directors. The committee is engaged in the preliminary inquiries essential to the proper organization of the necessary forces and in making the preparations necessary to comply with the requirements of the Commission.

Shortly after the passage of the Act, the principal carriers of the country, including this company, organized an association known as The Presidents' Conference Committee. This committee in an informal conference with the Commission pledged its hearty cooperation in the work. It has appointed an Engineering Committee consisting of fifteen members, which for several months past has been engaged in discussing with the Board of Engineers appointed by the Commission, the maps, profiles and schedules which shall be furnished by the carriers to the Commission for its use in inspecting, listing and valuing the property of the carriers. The questions involved have been of great importance and difficulty and as a result these conferences have necessarily taken a very considerable time and no active work has been undertaken by the Commission upon the property of this company. It is expected, however, that progress will be made during the year 1914.

In May, 1913, The New York Central and Hudson River Railroad Company joined with other roads, operating in the official classification territory, in an application to the Interstate Commerce Commission for a change in the tariffs which would produce an increase of approximately five per cent in freight rates. The Commission has the matter under advisement; at the present time there is no definite indication of the date when a conclusion will be reached by the Commission nor of the character of its decision.

During the year covered by this report, The New York Central and Hudson River Railroad Company has been authorized to execute three mortgages, two of which, known as the extension mortgage, dated April 16, 1913, and the consolidation mortgage, dated June 20, 1913, have actually been executed.

The extension mortgage simply extends the lien of The New York Central and Hudson River Railroad Company's $100,000,000 first mortgage, dated June 1, 1897, so as to cover the railroad properties of certain companies consolidated during the past year, which properties this company had previous to consolidation held under lease, the leaseholds being subject to the first mortgage.

The consolidation mortgage, which covers the lines of railroad owned by this company and certain stock and leasehold interests held by it, and which provides for the issuance of not exceeding $167,102,400 of four per cent. bonds to mature on the first day of February, 1998, has been executed to the Bankers Trust Company, as trustee, to secure bonds and debentures to the amount of $167,102,400. The bonds so secured are the $90,578,400 of three and one-half per cent Lake Shore collateral bonds, $19,336,000 of three and one-half per cent Michigan Central collateral bonds, $48,000,000 of the debentures of 1904 and $9,188,000 of the debentures of 1912. It is provided that the four per cent bonds issued under this mortgage may, from time to time, as the Board of Directors decides, be offered in exchange for and to retire the Lake Shore collaterals, the Michigan Central collaterals, or the debentures. The consolidation mortgage does not increase the present bonded indebtedness of the company.

The refunding and improvement mortgage which has been authorized by the Board of Directors, the stockholders, the Public Service Commission of the State of New York and the Public Utility Commission of New Jersey, is intended to provide for the future financing of the company or of a successor consolidated company, so far as such financing is to be met by the issuance of bonds. The bonds to be issued under this mortgage will become due on October 1, 2013, and the amount thereof at any time outstanding, together with all outstanding prior debt of the railroad company, is not to exceed three times the amount of the capital stock of the company or of a successor consolidated company, as the amount of such stock is from time to time increased.

Under the terms of the mortgage the Board of Directors is given the power to issue bonds, in series, bearing interest at such rates as shall be fixed and determined by the Board, for the purposes specified in the mortgage, up to the sum of $500,000,000. When the amount issued shall be $500,000,000 no additional amount of bonds shall thereafter be issued, except to refund prior debt, unless such further issue shall have been authorized by a majority vote of the stockholders. None of the additional bonds which may be so authorized by the stockholders shall be issued in respect of work done, or property acquired, in any amount exceeding eighty per cent of the cost of such work or property.

In connection with the Grand Central Terminal Improvement, the main concourse, the waiting room and many of the permanent facilities were opened to the public on February 1, 1913, and since that date rapid progress has been made towards the completion of the station. The shell of the incoming station has been completed and contract awarded for the interior finish and this important part of the terminal is expected to be ready for use by the middle of 1914. The Vanderbilt Avenue store and office building was completed and occupied during the summer and the Biltmore Hotel finished and opened on December 31st. The foundations for the Yale Club building at the corner of 44th Street and Vanderbilt Avenue have been commenced and this structure, in architectural harmony with the rest of the terminal improvements, is expected to be completed during 1914. The new building for the Railroad Branch of the Young Men's Christian Association at 50th Street and Park Avenue, is nearly finished and should be ready for opening by the summer of 1914. The hospital building at 42d Street and Lexington Avenue and the old Grand Central Palace have been demolished and removed and the work of excavation for the loops was commenced immediately on their removal. All the multiple-unit trains are now run in and out of the suburban level and many of the temporary tracks on the Lexington Avenue side have been put at the disposal of the engineering department in connection with the work of excavating for the loops. It is expected that the inner loop tracks in the suburban level will be placed in service during 1914, but the outer loop tracks on both levels will probably not be finished before the early part of 1915.

The public street system from 42d Street to 57th Street was entirely completed during the year and the different cross streets were opened at the various dates which had been fixed by the city. In order to complete the street system it is necessary for the City of New York to build the bridge over 42d Street connecting Park Avenue at 40th Street with the driveway around the station building, but the commencement of this work has been delayed awaiting a final conclusion by the public authorities as to the location of the subway connection between Park Avenue and Lexington Avenue; it is expected that the question will be settled soon, so that the full benefit of the street system may be secured and the front of the Terminal Building finished in accordance with the published plans.

John Pierpont Morgan, who had been a director of this company since November 28, 1899, died on March 31, and on April 16, his son, John Pierpont Morgan, was made a member of the Board of Directors to succeed him. On December 16, George S. Bowdoin, who had been a director since February 4, 1898, died and his place in the Board was vacant at the end of the year.

On November 18, 1913, William C. Brown announced his resignation from the office of President which he had held since February 1, 1909, and his position as a director which he had occupied from January 27, 1909, to take effect at the close of the year 1913. On December 10th, Alfred H. Smith, Senior Vice President, was elected to be President of the company to succeed Mr. Brown from January 1, 1914.

The following changes in Executive officers were made during the year:

April 1, Alfred H. Smith was made Senior Vice President; Abraham T. Hardin was made Vice President in charge of operation, maintenance and construction; on August 26, Howard M. Biscoe was made Vice President in charge of the Boston & Albany Railroad from September 1, to succeed James H. Hustis, resigned.

The following appointments were made during the year:

February 1, Miles Bronson was made General Superintendent of the Electric Division and Terminal Manager of the Grand Central Terminal; Garret H. Wilson was made Superintendent of the Electric Division and Superintendent of the Grand Central Terminal.

Acknowledgment is hereby rendered to officers and employees for faithful and efficient service.

ALFRED H. SMITH,
Senior Vice President.

CONDENSED GENERAL BALANCE SHEET, DECEMBER 31, 1913

ASSETS

PROPERTY OWNED AS INVESTMENT		
Physical property owned		
Road and equipment to June 30, 1907		
Road	$155,206,678.71	
Equipment	59,106,588.77	$214,313,267.48
Road and equipment since June 30, 1907		
Road	$90,501,459.93	
Equipment	19,667,260.82	
General expenditures	389,935.08	
Trust equipment	35,299,662.34	
Equity in M D T trust equipment	690,399.44	$146,548,717.61
Less Accrued reserve for depreciation	5,426,933.65	141,121,783.96
		$355,435,051.44
Securities owned		
Securities of controlled companies, pledged: stock		$110,295,970.00
Securities issued and assumed, pledged: funded debt		600,000.00
Securities of proprietary, affiliated and controlled companies, unpledged:		
Stock	$30,077,589.47	
Funded debt	8,357,625.00	38,435,214.47
		$149,331,184.47
Other permanent investments		
Advances to affiliated companies		
New York & Harlem Railroad Company	$20,532,184.38	
Grand Central Terminal Improvement	40,690,635.01	
Hudson River Bridge Company	1,401,925.00	
Account Boston & Albany trust equipment	2,390,495.96	$65,015,240.35

Physical property		5,232,807.17
Securities		3,713,892.50
		$73,961,940.02
Total property owned as investment		$578,728,175.93
WORKING ASSETS		
Cash		$10,078,931.23
Securities issued or assumed, held in Treasury		601,896.00
Marketable securities		
Stock	$25,170,818.81	
Funded debt	1,666,052.00	26,836,870.81
Loans and bills receivable		
New York State Realty & Terminal Company	$18,390,000.00	
Michigan Central Railroad Company	2,000,000.00	
Terminal Railway of Buffalo	1,500,000.00	
Clearfield Bituminous Coal Corporation	675,000.00	
Oneida Railway Company	603,000.00	
New Jersey Shore Line Railroad Company	560,000.00	
New York State Railways	400,000.00	
Merchants Despatch Transportation Company	250,000.00	
Rutland Railroad Company	203,000.00	
Mutual Terminal Company of Buffalo	188,750.00	
Syracuse Rapid Transit Company	175,000.00	
Fair Land Realty Company	150,000.00	
Miscellaneous	90,553,42	25,185,303.42
Net traffic, car mileage and per diem balance		4,438,816.33
Net balance due from agents and conductors		3,242,666.53
Miscellaneous accounts receivable		7,519,607.76
Materials and supplies		11,724,288.83
Unmatured interest, dividends and rents receivable		3,340,375.88
		$92,968,756.79
DEFERRED DEBIT ITEMS		
Advances		
Temporary advances to affiliated companies		$19,679.16
Working funds		174,079.79
Other advances		
West Shore Railroad Company	$12,926,050.62	
Geneva Corning & Southern Railroad Company	3,292,925.51	
Beech Creek Railroad Company	1,509,570.41	
Other companies	1,444,072.27	19,172,618.81
Insurance premiums paid in advance		7,779.69
Special deposits		2,947,817.56
Cash in redemption fund		1,000.00
Cash and securities in insurance and other reserve funds		75,810.03
Items in suspense		4,499,046.17
		$26,897,831.21
		$698,594,763.93

LIABILITIES		
STOCK		
Capital stock, common		$225,576,166.00
Consolidation certificates of 1869		4,900.00
		$225,581,066.00
MORTGAGE, BONDED AND SECURED DEBT		
Funded debt		
Mortgage bonds, as per details on capitalization page		$124,109,000.00
Collateral trust bonds		
Lake Shore collateral	$90,578,400.00	
Michigan Central collateral	19,336,000.00	109,914,400.00
Debentures and notes		
Debenture of 1900	$5,500,000.00	
Gold debentures of 1904	48,000,000.00	
Gold debentures of 1912	9,188,000.00	
Three year gold notes of 1911	30,000,000.00	
Three year gold notes of 1912	20,000,000.00	112,688,000.00
Equipment trust obligations		
Equipment trust certificates of 1907	$7,142,941.06	
Equipment trust certificates of 1910	5,207,573.04	
Equipment trust certificates of 1912	6,679,625.40	
Boston & Albany equipment trust certificates of 1912	4,872,000.00	
Equipment trust certificates of 1913	6,028,012.95	29,930,152.45
Miscellaneous		
Mortgages on real estate		2,002,500.00
		$378,644,052.45
WORKING LIABILITIES		
Loans and bills payable		$44,867,537.75
Net traffic, car mileage and per diem balance		5,112,172.64
Audited vouchers and wages unpaid		9,236,078.08
Matured dividends, interest and rents unpaid		4,346,942.59
Matured mortgage, bonded and secured debts unpaid		10,790.00
Working advances due to other companies		
Boston & Albany Railroad Company	$3,320,643.07	
Geneva Corning & Southern Railroad Company	544,542.92	
West Shore Railroad Company	92,578.54	
Wallkill Valley Railroad Company	59,349.37	4,017,113.90
Other working liabilities		4,835.60
		$67,595,470.56
ACCRUED LIABILITIES NOT DUE		
Dividends declared and interest and rents accrued		$6,631,947.30
Taxes accrued		1,424,025.00
		$8,055,972.30
DEFERRED CREDIT ITEMS		
Operating reserves		63,064.94
APPROPRIATED SURPLUS		
Additions to property through income since June 30, 1907		$5,608,735.49
Invested in sinking and redemption funds		80,608.04
		$5,689,343.53
FREE SURPLUS		
Profit and loss		$12,965,794.15
		$698,594,763.93

LAKE SHORE AND MICHIGAN SOUTHERN RAILWAY COMPANY ANNUAL REPORT

To the Stockholders of

THE LAKE SHORE AND MICHIGAN SOUTHERN RAILWAY COMPANY:

The Board of Directors herewith submits its report for the year ended December 31, 1913, with statements showing results for the year and the financial condition of the company.

The mileage embraced in the operation of the road is as follows:

	Miles
Main line and branches	849.09
Proprietary lines	269.72
Leased lines	543.70
Trackage rights	190.46
Total road operated	1,852.97

A change has been made in the classification of road mileage operated by transferring to mileage of leased lines the Erie and Kalamazoo Railroad, 21.82 miles, for years previously reported as a part of mileage of main line and branches. This road being in fact a leased line, under a strict interpretation of the agreement the change in classification is deemed advisable. There is a decrease in total miles of road operated in comparison with the previous year's report owing to the transfer to The Michigan Central Railroad Company for operation, of a section (19.60 miles) of the Detroit Toledo and Milwaukee Railroad. There were also some slight changes due to re-measurements and adjustments. A table showing in detail the miles of road and track operated will be found upon another page.

There was no change in capital stock during the year, the amount authorized and outstanding December 31, 1913, being $50,000,000.00.

The mortgage, bonded and secured debt outstanding on December 31, 1912, was		$169,406,167.10
It has been increased during the year by adding pro-rata liability for certificates issued under the New York Central Lines Equipment Trust agreement of 1913		1,213,072.16
		$170,619,239.26
It has been decreased by payments during the year of pro-rata of installments on account of equipment trust certificates as follows:		
January 1, third installment 1910 trust	$889,149.54	
January 1, first installment 1912 trust	198,330.75	
November 1, sixth installment 1907 trust	447,226.18	1,534,706.47
Total mortgage, bonded and secured debt outstanding December 31, 1913		$169,084,532.79

SUMMARY OF FINANCIAL OPERATIONS AFFECTING INCOME

OPERATING INCOME	1913	1912	Increase or Decrease
RAIL OPERATIONS	1,852.97 *miles operated*	1,872.30 *miles operated*	—19.33 *miles*
Revenues	$57,941,920.37	$54,283,616.52	$3,658,303.85
Expenses	42,445,209.21	35,534,644.36	6,910,564.85
NET REVENUE—RAIL OPERATIONS	$15,496,711.16	$18,748,972.16	—$3,252,261.00
Percentage of expenses to revenues	(73.25%)	(65.46%)	(7.79%)
AUXILIARY OPERATIONS			
Revenues	$1,411,189.34	$1,206,895.79	$204,293.55
Expenses	1,300,187.15	1,091,491.27	208,695.88
NET REVENUE — AUXILIARY OPERATIONS	$111,002.19	$115,404.52	—$4,402.33
NET OPERATING REVENUE	$15,607,713.35	$18,864,376.68	—$3,256,663.33
RAILWAY TAX ACCRUALS	2,126,437.54	1,771,097.88	$355,339.66
OPERATING INCOME	$13,481,275.81	$17,093,278.80	—$3,612,002.99

OTHER INCOME			
From lease of road	$5,000.00	$5,000.00	
Hire of equipment—credit balance	667,085.87	551,998.49	$115,087.38
Joint facility rents	380,247.05	357,851.47	22,395.58
Miscellaneous rents	105,111.30	98,394.37	6,716.93
Net profit from miscellaneous physical property	12,753.53	1,211.26	11,542.27
Separately operated properties—profit	1,213,371.26	1,272,125.22	—58,753.96
Dividend income	6,493,713.80	6,904,180.66	—410,466.86
Income from funded securities	564,450.57	488,311.25	76,139.32
Income from unfunded securities and accounts	1,025,334.20	663,001.23	362,332.97
Miscellaneous income	6,144.92	6,702.73	—557.81
TOTAL OTHER INCOME	$10,473,212.50	$10,348,776.68	$124,435.82
GROSS INCOME	$23,954,488.31	$27,442,055.48	—$3,487,567.17
DEDUCTIONS FROM GROSS INCOME			
For lease of other roads	$2,904,413.31	$2,663,239.19	$241,174.12
Joint facility rents	901,485.89	774,143.47	127,342.42
Miscellaneous rents	21,916.69	8,029.45	13,887.24
Miscellaneous tax accruals	1,220.25	5,948.22	—4,727.97
Separately operated properties—loss	36,513.77	178,693.51	—142,179.74
Interest for funded debt	6,632,067.65	6,678,440.31	—46,372.66
Interest for unfunded debt	968,530.64	549,177.27	419,353.37
TOTAL DEDUCTIONS FROM GROSS INCOME	$11,466,148.20	$10,857,671.42	$608,476.78
NET INCOME	$12,488,340.11	$16,584,384.06	—$4,096,043.95
DIVIDEND APPROPRIATIONS OF INCOME			
On guaranteed stock (18%)	$96,030.00	$96,030.00	.....
On common stock (18%)	8,903,970.00	8,903,970.00	.....
TOTAL DIVIDEND APPROPRIATIONS OF INCOME	$9,000,000.00	$9,000,000.00	.....
INCOME BALANCE TRANSFERRED TO CREDIT OF PROFIT AND LOSS	$3,488,340.11	$7,584,384.06	—$4,096,043.95

Amount to credit of profit and loss (free surplus), December 31, 1912		$41,187,167.89
Add:		
Balance to credit of profit and loss for the year 1913	$3,488,340.11	
Balance profit from operation of the Pittsburgh, McKeesport and Youghiogheny Railroad from July 1, 1907, to December 31, 1911	4,362,643.43	
Profit from sale of $7,350,000.00 bonds of The Cleveland Short Line Railway Company	246,215.00	
Proportion of profit from sale of a portion of the Detroit Toledo and Milwaukee Railroad	132,501.00	8,229,699.54
		$49,416,867.43
Deduct:		
Discount, commission and expenses on one year notes	$166,864.24	
Discount, commission and expenses on New York Central Lines equipment trust certificates of 1913	43,544.84	
Adjustment of sundry accounts including uncollectible items	70,514.29	280,923.37
Balance to credit of profit and loss (free surplus), December 31, 1913		$49,135,944.06

The revenues from rail operations for the year were the largest in the history of the company, amounting to $57,941,920.37, an increase of $3,658,303.85 or 6.74% as compared with the previous year.

Freight revenue was $38,434,441.92, an increase of $2,063,197.43. The revenue freight carried amounted to 43,094,033 tons, or 2,012,460 tons more than last year. With the exception of products of agriculture, each group of commodities shows a greater tonnage carried than in 1912. Products of mines show a conspicuous improvement in tonnage moved, especially in bituminous coal, which increased 686,831 tons, ores 730,782 tons, and stone, sand and other like articles and other products of mines 257,860 tons. The movement of manufactured commodities was 701,060 tons greater than during 1912, the noticeable increases being in bar and sheet metal, cement, brick and lime and other manufactured articles. In accordance with orders of the Interstate Commerce Commission freight rates on coke from the Connellsville district were reduced effective August 1, 1913, and freight rates on ore from Lake Erie ports to the Pittsburgh district were reduced effective August 15, 1913, resulting in a substantial loss of revenue to the company.

Passenger traffic of the company shows a gratifying growth over the previous year, the increase in revenue therefrom being $1,190,494.73. There were 794,797 more passengers carried than in the previous year, of whom 244,974 were interline, and 549,823 local fares.

Revenue from transportation of mails was $2,060,289.31, an increase of $86,061.55.

Since the regular quadrennial weighing of mails in 1911, the parcel post has been inaugurated, the original weight limit of parcels being eleven pounds, for the transportation of which Congress has allowed an increase in compensation (effective from July 1, 1913, and until the next regular weighing of the mails) of not to exceed five per cent., which is equal to an annual increase of $134,430.91 in the compensation paid this company for carrying the mails. The situation in reference to mail pay, however, is still unsatisfactory. Pending the report of the joint Congressional Committee now sitting and action upon this report by Congress, the conditions have been much aggravated by the enlargement of the parcel post, with substantially no return to the railroads for the increased service. This new feature of mail transportation has had the effect of curtailing express revenue without compensating return from other sources of traffic.

Revenue from express traffic was $2,103,615.85, an increase of $117,925.53, attributable to additional business handled during the year.

Other transportation revenues amounted to $1,773,017.39, an increase of $146,233.39, due to additional revenue derived from switching service.

Revenues other than transportation were $544,862.34, an increase of $54,391.22, largely due to collections from other railway companies for detouring their trains during the spring floods, and to greater revenues received from car service and storage.

Operating expenses for the year, by groups, were:

	Amount	Increase	Per Cent
Maintenance of way and structures	$7,593,610.18	$1,077,398.28	16.53
Maintenance of equipment	12,471,741.17	3,187,908.34	34.34
Traffic expenses	1,071,647.54	109,885.88	11.43
Transportation expenses	20,158,292.43	2,360,957.98	13.26
General expenses	1,149,917.89	174,414.37	17.88
Total	$42,445,209.21	$6,910,564.85	19.45

In maintenance of way and structures the principal increases are in renewal of rails and ties, and roadway and track work, chiefly due to 100 miles of rail laid during 1913 in excess of 1912, and 105,000 more ties renewed than in the previous year; also to an increasing quantity of creosoted ties used. A general shortage of labor necessitated increased wages of mechanics and laborers, which added $320,975.00 to roadway and track expenses. Maintenance expenses were also required to bear the renewal portion of general improvements carried on by the company during the year, which resulted in heavy charges to repairs of bridges, buildings and signal and interlocking plants.

The increase in maintenance of equipment expenses is principally due to greater expenditures for repairs to locomotives and freight train cars. The mileage of locomotives in revenue service increased 6.13 per cent over 1912, and freight train car mileage was 485,900,628 miles or 9.06 per cent more than last year, making imperative heavy repairs in order to keep the equipment in service. In comparison with the previous year there was an increase of 132,792 freight train cars repaired. A general advance in pay of approximately 4 per cent was granted to employes of the locomotive and car departments, creating an increase of $182,600.00 in maintenance of equipment expenses. Additional charges to renewal of equipment were occasioned by the rebuilding of 34 locomotives into Mikado type and the disposal and dismantling of a larger number of old passenger train cars than in the previous year. All retirements of equipment during the year, including the amount of depreciation not already accrued thereon, have been charged to operating expenses, and in addition thereto depreciation at the rate of two per cent per annum has been accrued since January 1, 1913, upon the cost of equipment of all classes and charged to expenses.

Practically all items under traffic expenses show increases, the principal item being cost of printing tariffs in connection with the application for an increase in freight rates which have been presented to and suspended by the Interstate Commerce Commission.

In transportation expenses practically all items show increases, partially attributable to the greater tonnage handled and an increase of 5.79 per cent in passenger train mileage. Tonnage moved during the year increased 4.9 per cent over the previous year, as compared with an increase of 3.23 per cent in freight train mileage and 3.16 per cent in freight locomotive miles. Increases in wages granted to stationmen, yardmen, engineers, firemen and trainmen during the year and the latter part of 1912, some of which were the result of arbitration, added to transportation expenses for the year the sum of $263,081.93.

General expenses increased $174,414.37, principally due to a change in the distribution of pay of clerks employed in the Shop and Engineer Accountants' offices heretofore charged to other operating accounts and to additions in clerical forces needed to meet the continually increasing requirements of the Interstate Commerce Commission and State Commissions.

Net revenue from auxiliary operations for the year amounted to $111,002.19, a decrease of $4,402.33 as compared with the previous year, attributable to increased cost of ice required to supply the company's commercial ice supply plants.

Railway tax accruals amounted to $2,126,437.54, an increase over the previous year of $355,339.66. Approximately $193,500.00 of which was due to taxes on the property of The Cleveland Short Line Railway Company having been included in this account for this year and paid by The Lake Shore and Michigan Southern Railway Company as provided for under the terms of the lease; $118,000.00 to increase in tax rates and property returned, and the balance to increased assessment.

Other income for the year amounted to $10,473,212.50, an increase of $124,435.82, as compared with the previous year. Additional income was derived from hire of equipment and from interest upon unfunded securities and accounts. There was a decrease in income from dividends on stock owned by the company as compared with last year, chiefly because The Pittsburgh and Lake Erie Railroad Company stock owned by the company paid a smaller extra dividend than in 1912. This loss in revenue was partially offset, however, by an extra dividend of fifty per cent received on stock of The Mahoning Coal Railroad Company. Income from separately operated properties decreased $58,753.96, attributable to a reduction in surplus earnings for the year of the Pittsburgh McKeesport and Youghiogheny Railroad, in which the company has a one-half interest.

Deductions from gross income for the year were $11,466,148.20, showing an increase of $608,476.78 over last year, due to the following causes:

Deductions for lease of other roads increased $241,174.12, owing to the payment of a full year's rental to The Lake Erie Alliance and Wheeling Railroad Company, as compared with six months in the previous year, to additional rental paid to The Mahoning Coal Railroad Company account increase in traffic moved over that road, and to increase in rental paid to The Cleveland Short Line Railway Company due to additional stock and bonds issued by that company during the year.

Separately operated properties—loss decreased $142,179.74, due to the discontinuance on January 1, 1913, of the guaranteed payments to the Merchants Despatch Transportation Company.

Interest on unfunded debt increased $419,353.37. This is attributable to interest charges accruing on an additional issue of one year notes by the company during the year.

From the net income of the company for the year, amounting to $12,488,340.11, there were paid three dividends of 6 per cent each on both the guaranteed and common capital stock, aggregating 18 per cent or $9,000,000.00, leaving a balance of $3,488,340.11 which was transferred to the credit of profit and loss.

There was expended during the year for additions and improvements to the property $4,919,567.73, all of which was charged direct to capital account. The following are the important items:

Completion of new double track draw bridge at Buffalo started in 1912.

New enginehouse and car repair yard at Wesleyville, Pennsylvania.

The construction of a new car repair plant for repairing steel equipment was started at Ashtabula and will be completed early in 1914. It was necessary to provide a plant of this nature owing to the large amount of steel car repair work now required to properly care for that constantly increasing class of equipment.

Continuation of work in connection with change of line at Port Clinton, Ohio.

*Credit.

Improvements at Air Line Junction, consisting of additional yard tracks, new freight engine terminals, coal chute, large general car repair yard and shop.

At Elkhart the power house for the new locomotive repair shop was practically completed.

At Englewood there were completed new engine terminals and new freight car repair shed and tracks.

Large expenditures were made for separation of grades at Detroit, Cleveland, Toledo and Chicago in order to comply with State and Municipal requirements.

A statement showing in detail the expenditures for additions and betterments will be found on a following page.

This company in conjunction with The Michigan Central Railroad Company as owners in equal proportions of all of the capital stock of the Detroit Toledo and Milwaukee Railroad Company consented to the sale by the latter of that part of its railroad between Battle Creek, Michigan and Allegan, Michigan, which sale was consummated effective September 1, 1913. Inasmuch as the portion of the line sold had been operated by The Michigan Central Railroad Company, a new subdivision of the road for operating purposes was made, which resulted in this company relinquishing to The Michigan Central Railroad Company for operation that portion of the Detroit Toledo and Milwaukee Railroad between Moscow, Michigan and Homer, Michigan, a distance of 19.60 miles.

The company issued on March 15, 1913, $12,000,000.00 of one year notes payable March 15, 1914. Of the proceeds realized $11,710,706.57 was used to reimburse J. P. Morgan and Company for amounts advanced to retire the company's one year franc and sterling notes falling due February 24, 1913, and March 2, 1913. The company also issued on May 15, 1913, its one year sterling notes payable May 15, 1914, for 2,000,000 pounds equivalent to $9,726,500.00, and on September 6, 1913, issued its one year sterling notes payable September 6, 1914, for 420,000 pounds equivalent to $2,041,410.00, making a total amount of its sterling notes sold during the year of $11,767,910.00, the proceeds of which were placed in the treasury of the company.

During the year the company surrendered to The Cleveland Short Line Railway Company its holding of 35,250 shares of preferred stock in exchange for $3,525,000.00 of first mortgage bonds of that company. On January 29th the company also acquired by purchase 10,000 shares of common stock, par value $1,000,000.00, and $1,275,000.00 of first mortgage bonds of The Cleveland Short Line Railway Company, making a total of 47,500 shares of common stock, par value $4,750,000.00, and $11,800,000.00 of first mortgage bonds of that company issued and outstanding, and at that time possessed by The Lake Shore and Michigan Southern Railway Company. Later in the year the company sold $7,350,000.00 of the said first mortgage bonds after having guaranteed the payment of the principal and interest thereof. The company has also loaned to The Cleveland Short Line Railway Company the sum of $525,000.00 on demand notes of that company.

In accordance with authority of the Board and as referred to in last year's report the company sold at par 17,772 shares of stock of the Merchants Despatch Transportation Company and at the same time acquired by purchase from that company full ownership of 2,520 refrigerator cars and an equity in 468 refrigerator cars covered by Merchants Despatch Equipment Trust of 1911.

There was acquired during the year by purchase, 2,115 shares of stock, par value $105,750.00, of The Pittsburgh McKeesport and Youghiogheny Railroad Company.

Under the contracts for the acquisition of coal lands in Christian, Montgomery, Fayette, Saline, Franklin and Williamson Counties, Illinois, as referred to in report for 1912, the company has received during the year, deeds for 53,709 acres and has paid $1,544,701.47, making the total lands acquired to December 31, 1913, 70,009 acres at a cost of $2,273,011.45.

The company being the owner of all of the capital stock of The Elkhart and Western Railroad Company and all of the mortgage bonds issued by that company as of June 1, 1893 and due June 1, 1913, amounting to $200,000.00, has surrendered said bonds and secured the release of the mortgage and a record of such release in Elkhart and St. Joseph Counties, Indiana.

Since November 24, 1912, the parallel lines of the company and The Michigan Central Railroad Company between River Rouge, Michigan, and Wagon Works, Ohio, have been operated as double track, southbound trains using the track of The Lake Shore and Michigan Southern Railway Company and northbound trains using the track of The Michigan Central Railroad Company. Both companies are benefitted by the greater safety, efficiency and convenience of double track operation.

Out of $24,000,000.00 of certificates authorized under the New York Central Lines Equipment Trust of 1913 there were issued during the year an aggregate of $15,494,000.00. The cost of the equipment to be assigned to this company in connection with the issue of these latter certificates is approximately $1,347,857.96 and its pro-rata amount of certificates representing not to exceed 90% of the cost is $1,213,072.16. Full particulars as to the character of the equipment acquired is set forth upon another page of this report.

Cost of road and equipment on December 31, 1912, was....		$135,766,748.79
It has been increased during the year as follows:		
Expenditures for additions and betterments to the property as shown in detail elsewhere..	$4,919,567.73	
Cost of equipment received during the year under the equipment trust of 1913.....	1,119,712.00	
Cost of new equipment purchased by the company during the year, consisting of 8 class J-41 locomotives, 5 combination passenger and baggage cars, 6 horse cars, 1,000 refrigerator cars and 1 locomotive crane.....	1,845,790.89	
Value of equipment acquired from Merchants Despatch Transportation Company consisting of full ownership of 2,520 refrigerator cars and an equity in 468 refrigerator cars covered by Merchants Despatch Equipment Trust of 1911	1,794,798.75	9,679,869.37
		$145,446,618.16
Value of equipment retired from service during the year	$1,378,642.41	
Less amount charged in connection with conversion of 34 class G-5 locomotives to Mikado type, cost of applying superheaters to 77 locomotives, rebuilding dining car and conversion of 17 passenger and 49 freight cars to work equipment	426,846.84	
	$951,795.57	
Net credit account adjustments and deferred charges for 1910 and 1912 trust equipment...	9,810.89	961,606.46
		$144,485,011.70
Amount credited account depreciation accrued during the year on all equipment in service..	$1,428,697.41	
Less depreciation on equipment retired from service during the year.....	113,059.13	1,315,638.28
Cost of road and equipment, December 31, 1913.....		$143,169,373.42

Under an agreement dated August 1, 1913, the company has obtained freight trackage rights over the rails of The New York Central and Hudson River Railroad Company from a connection near Seneca Street, Buffalo, to a connection with the International Bridge at Black Rock, N. Y., which enables the direct interchange of traffic with the Michigan Central Railroad.

In the operation of the pension department 51 employes were retired and placed upon the pension rolls. Of these retirements, 30 were authorized because of the attainment of seventy years of age and 21 because of total and permanent physical disability. 33 pensioners died during 1913 and at the close of the year 364 retired employes were carried upon the pension rolls. The average monthly pension allowance to these men was $22.89 and the total amount paid in pension allowances during the year was $99,854.22.

Section 19-A of the Act to Regulate Commerce, which became a law on the first day of March, 1913, provides that the Interstate Commerce Commission shall investigate and ascertain the value of all the property owned or used by all railroad companies. The Commission is required to ascertain and report in detail as to each piece of property owned or used, the original cost to date, cost of reproduction new, cost of reproduction less depreciation; also all other values and elements of value, if any, of such property. It is also required to investigate and to report upon the history and organization of the present and of any previous corporation operating the property; upon moneys received by reason of any issue of stocks, bonds, or other securities; upon the syndicating, banking, and other financial arrangements under which such issues were made and the expense thereof, together with a large number of other matters unnecessary to specify in detail. The company is required to co-operate with and aid in the work of the valuation of its property in such particulars and to such extent as the Commission may require and direct. It is impossible even to approximate at this time the expense which will thereby be incurred. The performance of the work for the company has been undertaken by a Valuation Committee appointed by the Board of Directors. The Committee is engaged in the preliminary inquiries essential to the proper organization of the necessary forces and in making the preparation required to comply with the requirements of the Commission. Shortly after the passage of the Act, the principal carriers of the country, including this company, organized an association known as The Presidents' Conference Committee. This Committee in an informal conference with the Commission, pledged its hearty co-operation in the work. It has appointed an Engineering Committee consisting of fifteen members, which for several months past has been engaged in discussing with the Board of Engineers appointed by the Commission, the maps, profiles and schedules which shall be furnished by the carriers to the Commission for its use in inspecting, listing and valuing the property of the carriers. The questions involved have been of great importance and difficulty and as a result these conferences have necessarily taken a very considerable time and no active work has been undertaken by the Commission upon the property of this company. It is expected, however, that progress will be made during the year 1914.

During the year 1913, practically all of the railroads in the eastern section of the United States, operating in the territory east of the Mississippi and north of the Ohio and Potomac Rivers, were parties to arbitrations, first with the Brotherhood of Locomotive Firemen and Enginemen, and later with the Order of Railway Conductors and Brotherhood of Railway Trainmen, acting jointly. The concerted movement of the Firemen demanded standardization of pay and working conditions, involving an increase in the wages of firemen employed by this company of approximately 58 per cent and resulted in arbitration under the Erdman Act. The railroads selected Mr. William W. Atterbury, Vice-President of the Pennsylvania Railroad, and the firemen designated Mr. Albert Phillips, Vice-President of the Brotherhood of Locomotive Firemen and Enginemen. The third member of the Board (appointed by the Federal Authorities) was the Honorable William L. Chambers, of Washington, D. C., who was selected Chairman. The Arbitration proceedings were held in New York from March 10th to April 5th, and on April 23rd an award was handed down which provided for an increase in wages paid to firemen on the Lake Shore and Michigan Southern Railway of 12.15% or $137,636.00 per annum. While the Conference Committee of Managers were engaged in preparation for the Firemen's Arbitration proceedings, a petition approved October 19, 1912, by the Eastern Association of General Committees, Order of Railway Conductors and Brotherhood of Railroad Trainmen for standardization of rates of pay, involving an increase in the payrolls of this company, estimated at $662,000.00 or 19% per annum was presented to all roads east of Chicago and north of the Chesapeake and Ohio Railway, and to the Conference Committee of Managers as well, with a view of ascertaining whether the matter would be handled by the several roads individually or in concert. United action was determined upon by the roads concerned and an Arbitration Board consisting of six members was agreed to under the terms of the Newlands Amendment of the Erdman Act. The railroads were represented upon this Board by Mr. W. W. Atterbury, Vice-President, Pennsylvania Railroad, and Mr. A. H. Smith, Senior Vice-President, New York Central Lines. The Conductors' and Trainmen's organizations designated as their representatives Mr. L. E. Sheppard, Senior Vice-President, Order of Railway Conductors, and Mr. D. L. Cease, Editor and Manager, "The Railroad Trainmen," and the four members so selected met and completed their Board by choosing the Honorable Seth Low and Doctor John H. Finley, President, the College of the City of New York. The Board so constituted, having chosen Mr. Seth Low as its Chairman, heard testimony between September 11th and October 15th, and on November 10th handed down its award, which provided for an increase in the wages of conductors and trainmen employed by this company of 6.5%, or approximately $226,156.00 per annum.

The Board records the death at Rome, Italy, on March 31, 1913, of Mr. J. Pierpont Morgan, who had been a director of the company from May 17, 1898, to November 13, 1903 and again since May 4, 1904. To fill this vacancy his son Mr. J. Pierpont Morgan was, on April 30, 1913, elected a director of the company.

The Board records the appointment on April 1, 1913, of Mr. Alfred H. Smith as Senior Vice-President of the company and of Mr. John J. Bernet, Vice-President in charge of operation, maintenance and construction.

The Board also records the resignation, effective December 31, 1913, of Mr. William C. Brown, who has been a director of the company since June 21, 1901, and President of the company since February 1, 1909. To fill these vacancies Mr. Alfred H. Smith was on December 10, 1913, elected President and a director of the company effective January 1, 1914.

Acknowledgment is hereby rendered to officers and employes for faithful and efficient service.

ALFRED H. SMITH,
Senior Vice-President.